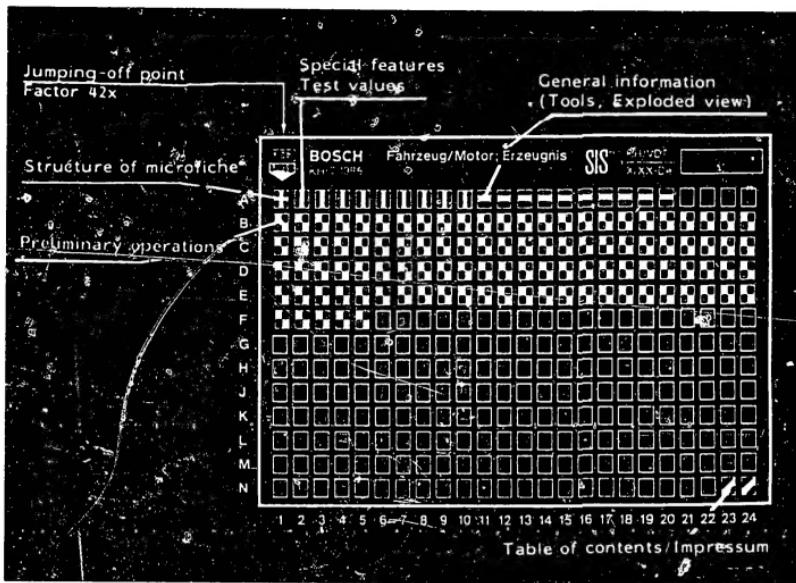
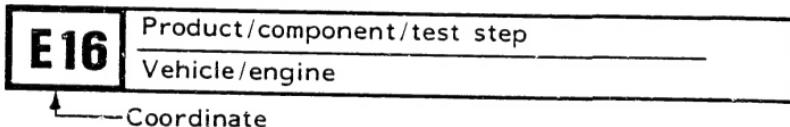


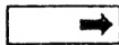
## Structure of microfiche



1. Read from left to right
2. Title of microfiche (appears on each coordinate)



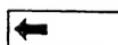
3. Limits of section



Beginning



Mid-section



End



One-page section

4. Purely vehicle-specific passages in the text are marked with a vertical bar.
5. Reference to relevant working steps in the test specifications, e.g. coordinate C6.



**A1**

## 1. SPECIAL FEATURES

These instructions describe the repair of governors of series:

RSV..M..B..  
..MW.../..  
..A..B..  
..P.../..

RSV..M..C..  
..MW..A..  
..A..C..  
..P..A..

RSUV..P.../.. RSUV..P..A..

The repair of RSV and RSUV governors is basically identical. Reference is made to special features of the RSUV governor in cases where these differ from the RSV governor. The built-on injection pump is repaired according to the respective instructions.

These instructions supersede: I-420/104, I-420/106, I-420/113 and WJP 211/5.

## 2. TEST SPECIFICATIONS

2.1 Gap between sliding sleeve and governor housing:

RSV..M..B..  
..MW.../..  
..A..B..  
..P.../.. } Specification: 18.8...19.2 mm (without gasket)

RSUV..P.../.. Specification: 18.3...18.7 mm (without gasket)



## 2.2 Leak test (governor chamber)

Test duration and test pressure, A,M and MW pumps  
3 minutes at 1.5 bar, then  
1 minute at 0.5 bar.

Test duration and test pressure, P pump

7 minutes at 1.5 bar, then  
1 minute at 0.5 bar

## 2.3 Tightening torques

The drawing on the following Coordinates A4/A5 itemizes nuts, screws etc.

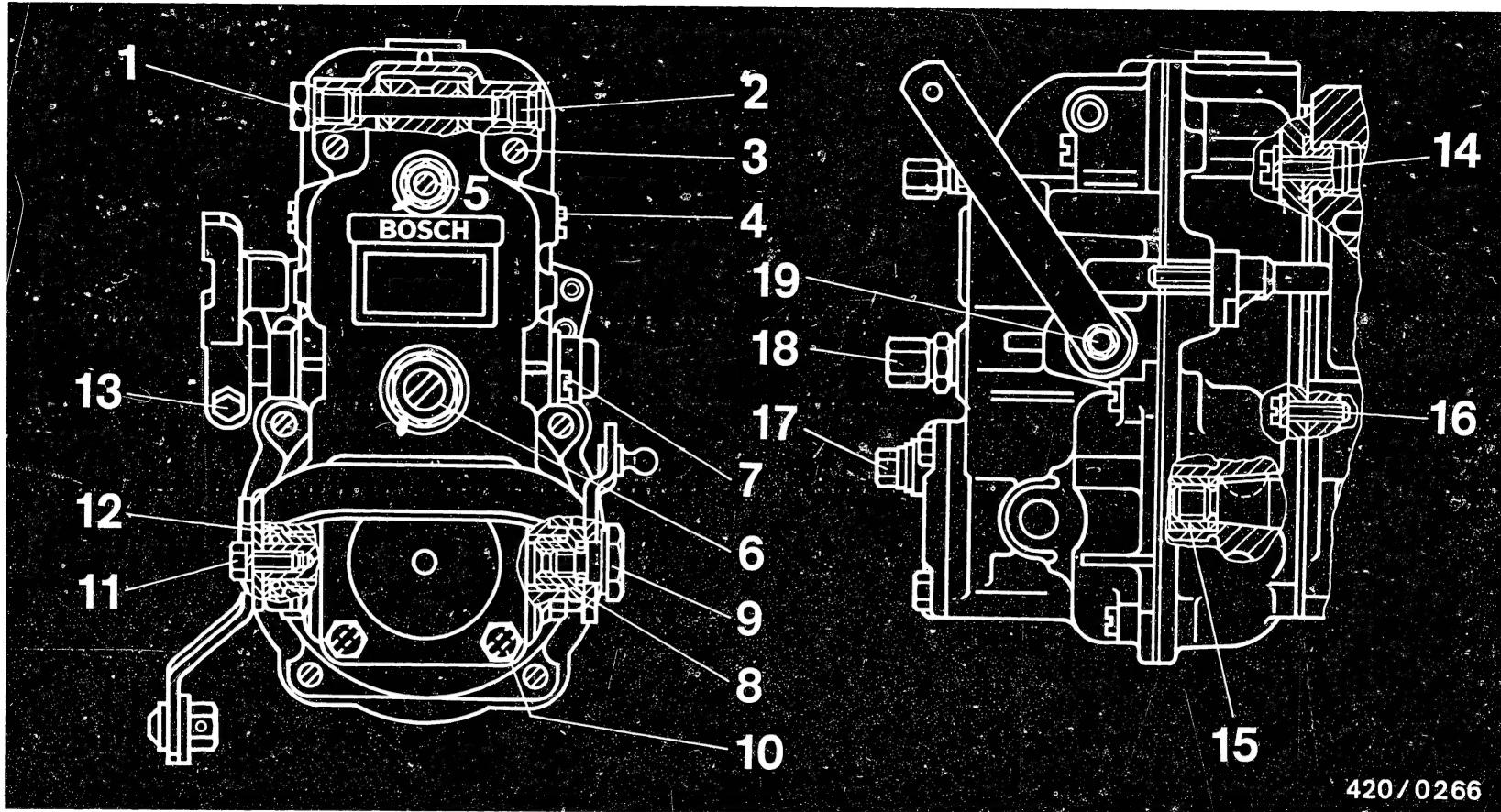
These items are repeated on Coordinates A6/A7 together with the corresponding tightening torques.

**A3**

Test specifications

RSV/RSUV governors





420/0266

Tightening torques

Item	Coordinate
1 ... 13	A6
14 ... 19	A7

**A4**

Test specifications  
RSV/RSUV governors



**A5**

Test specifications  
RSV/RSUV governors



## Tightening torques

### Item

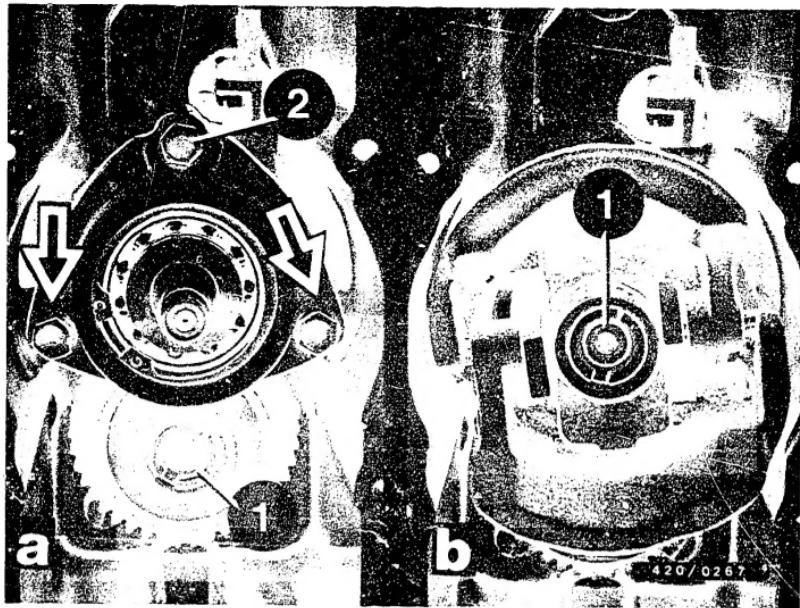
1 = Hexagon screw		12 ... 15 Nm
2 = Screw plug		12 ... 15 Nm
3 = Fillister-head screw		5 ... 7 Nm
4 = Fillister-head screw		2.5...3.5 Nm
5 = Hexagon nut	M6	6 ... 9 Nm
	M8	15 ... 17 Nm
6 = Hexagon nut		6 ... 8 Nm
7 = Fillister-head screw		3 ... 5 Nm
8 = Threaded bushing		25 ... 30 Nm
9 = Hexagon screw	M8	9 ... 12 Nm
	M6	8 ... 10 Nm
10 = Hexagon screw		5 ... 7 Nm
11 = Hexagon screw		7 ... 9 Nm
12 = Inlet-union screw		25 ... 30 Nm
13 = Clamping screw		11 ... 13 Nm



## Tightening torques (continued)

### Item

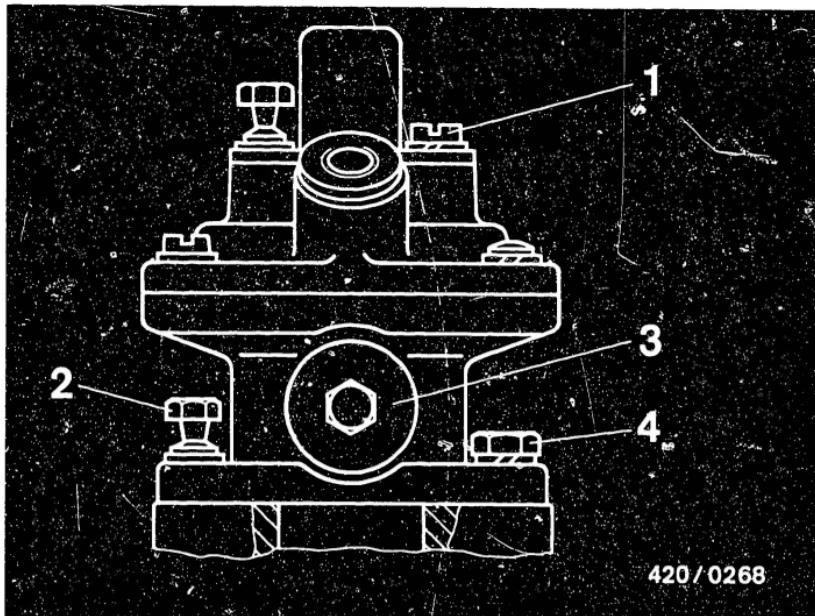
14 = Flat-head screw	13 ... 18 Nm
Hexagon screw	18 ... 20 Nm
Fillister-head screw	15 ... 18 Nm
15 = Round nut	50 ... 60 Nm
16 = Fillister-head/flat-head screw	9 ... 12 Nm
17 = Screw plug	10 ... 12 Nm
18 = Cap nut	6 ... 8 Nm
19 = Hexagon screw	8 ... 9 Nm



Tightening torques (continued)

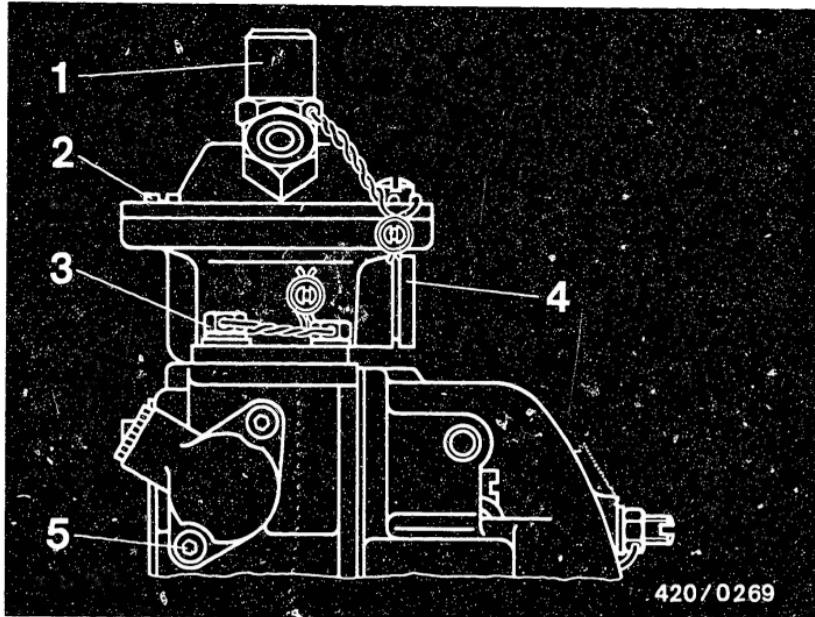
1 = Round nut 50 ... 60 Nm

2 = Fillister-head screw 5 ... 7 Nm



#### Tightening torques (continued)

1 = Fillister-head screw	5 ... 7 Nm
2 = Break-off screw	2 ... 3 Nm
3 = Screw plug	30 ... 35 Nm
4 = Hexagon screw	5 ... 7 Nm



#### Tightening torques (continued)

1	= Cap nut	25 ... 35 Nm
2	= Fillister-head screw	5 ... 7 Nm
3	= Hexagon screw	5 ... 7 Nm
4	= Screw plug	30 ... 35 Nm
5	= Hexagon-socket-head cap screw	4 ... 5.5 Nm

### 3. GENERAL INFORMATION

- Always replace worn or damaged components as well as sealing elements.
- Governor components which are stored for a lengthy period of time should be covered and protected against rust.
- The procedure for dismantling and assembling the RSV.. and RSUV governors is basically identical. Therefore, special features which apply to the RSUV governor are only pointed out if they differ greatly from the RSV governor.
- Leak test on governor chamber:

To prevent possible skin rashes when immersing in the oil bath, grease hands beforehand with protective skin cream and wash with soap and water after testing is completed.

## General information (continued)

### • Cleaning the parts

Wash the parts in low-inflammability, commercially available cleaning agent e.g. Chlorothene NU.  
Then blow off with compressed air.

### • Safety regulations when handling combustible liquids

Decree on Working with Combustible Liquids (Vbf) issued by the Federal Ministry of Labor (BmA).

Safety Rules for Handling Chlorinated Hydrocarbons  
for the workshop ZH1/222

for the employee ZH1/119

issued by the Central Association of German Employers' Liability Insurance Associations (Central Association for Accident Prevention and Industrial Medicine)  
Langwartweg 103, 5300 Bonn 5.

In countries outside the Federal Republic of Germany, observe the corresponding local regulations.



#### 4. TOOLS, FIXTURES, LUBRICANTS

Description	Part Number	Use
Pin-type socket wrench	KDEP 1541 KDEP 2966 KDEP 2968	Loosening and adjusting spring retainer
Pin-type socket wrench	KDEP 2998	Loosening and tightening governor assembly round nut
Puller	KDEP 2886	Loosening governor assembly from camshaft
Puller (two-claw puller)	commercially available	Pulling off sliding sleeve (RSV/RSUV) and governor shaft (RSUV)
Depth gauge	commercially available	Checking gap between sliding sleeve and housing
Press-out and -in mandrel	KDLI 6499/0/3	Pressing in swiveling-lever bearing bushings
Adjusting wrench	KDEP 1542	Adjusting the sleeve position



Tools, fixtures and lubricants  
 (continued)

Description	Part Number	Use
Press-on sleeve	KDEP 1582	Pressing bearing into sliding sleeve and pressing driver out of gear (RSUV)
Press-on sleeve	KDEP 1583	Pressing angular-contact ball bearing out of bearing end plate and pressing bearing end plate onto governor shaft (RSUV)
Puller bracket	KDEP 1587	Pulling governor shaft out of governor housing (RSUV)
Press-on sleeve	KDEP 1559	Pressing angular-contact ball bearing into bearing end plate (RSUV)

4.1 Lubricants

Sealant and adhesive  
 Loctite CVV (blue) commercially avail.

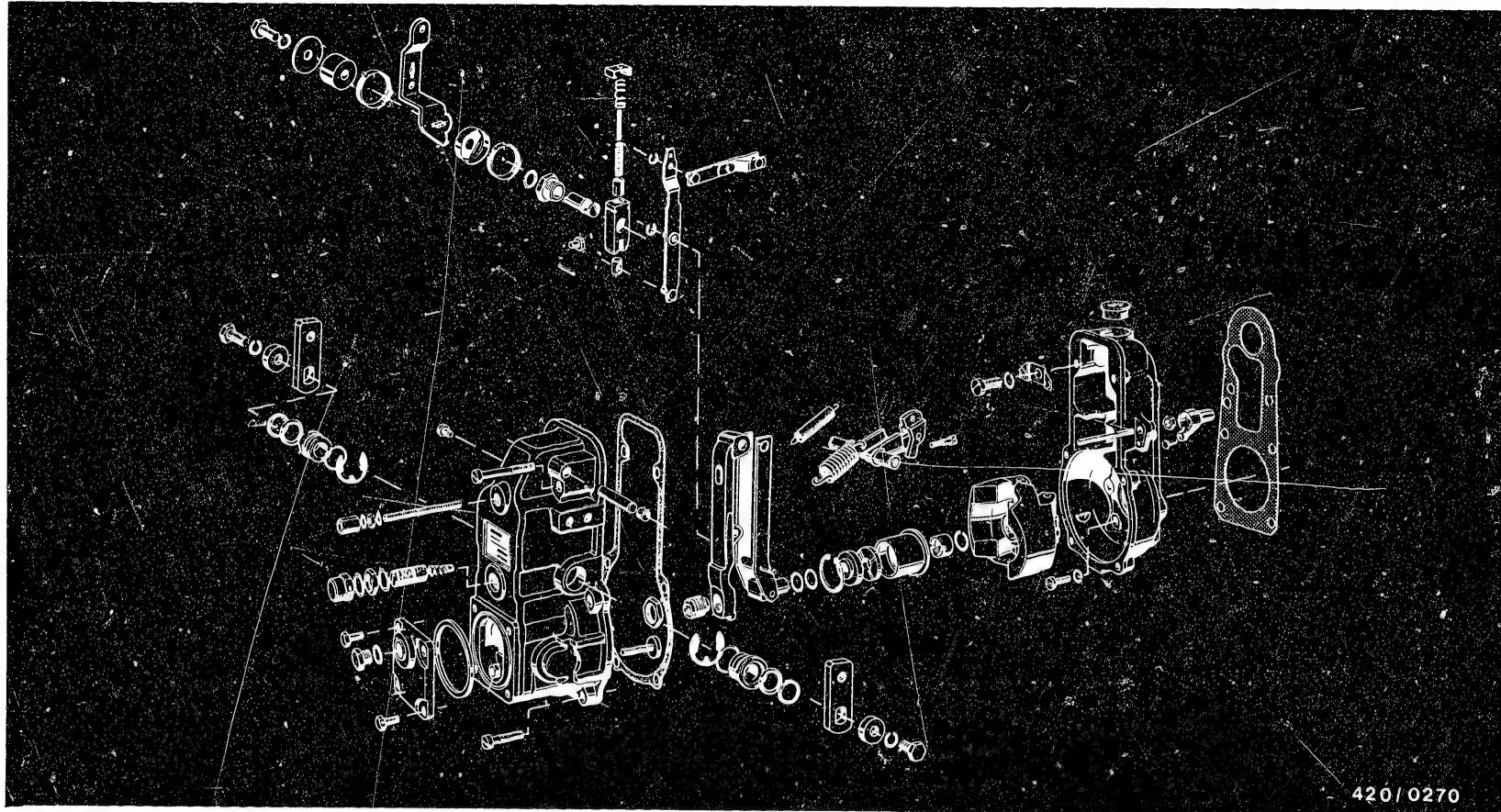
High-temperature  
 bearing grease  
 (Ft 1v4) Tube 250 g 5 700 002 025

Special gear  
 grease Ft 1v27  
 Tube 50 g 5 700 052 005  
 Tube 250 g 052 025

Hylomar sealant  
 VS 9844-KK Tube 25 g 5 927 350 002

Sealing paint, yellow  
 Kk 26 v 9 Tube 30 g 5 703 245 003





420/0270

5. EXPLODED VIEW OF SERIES RSV..M...B.., MW.../.., A..B.., P.../..

**A15**

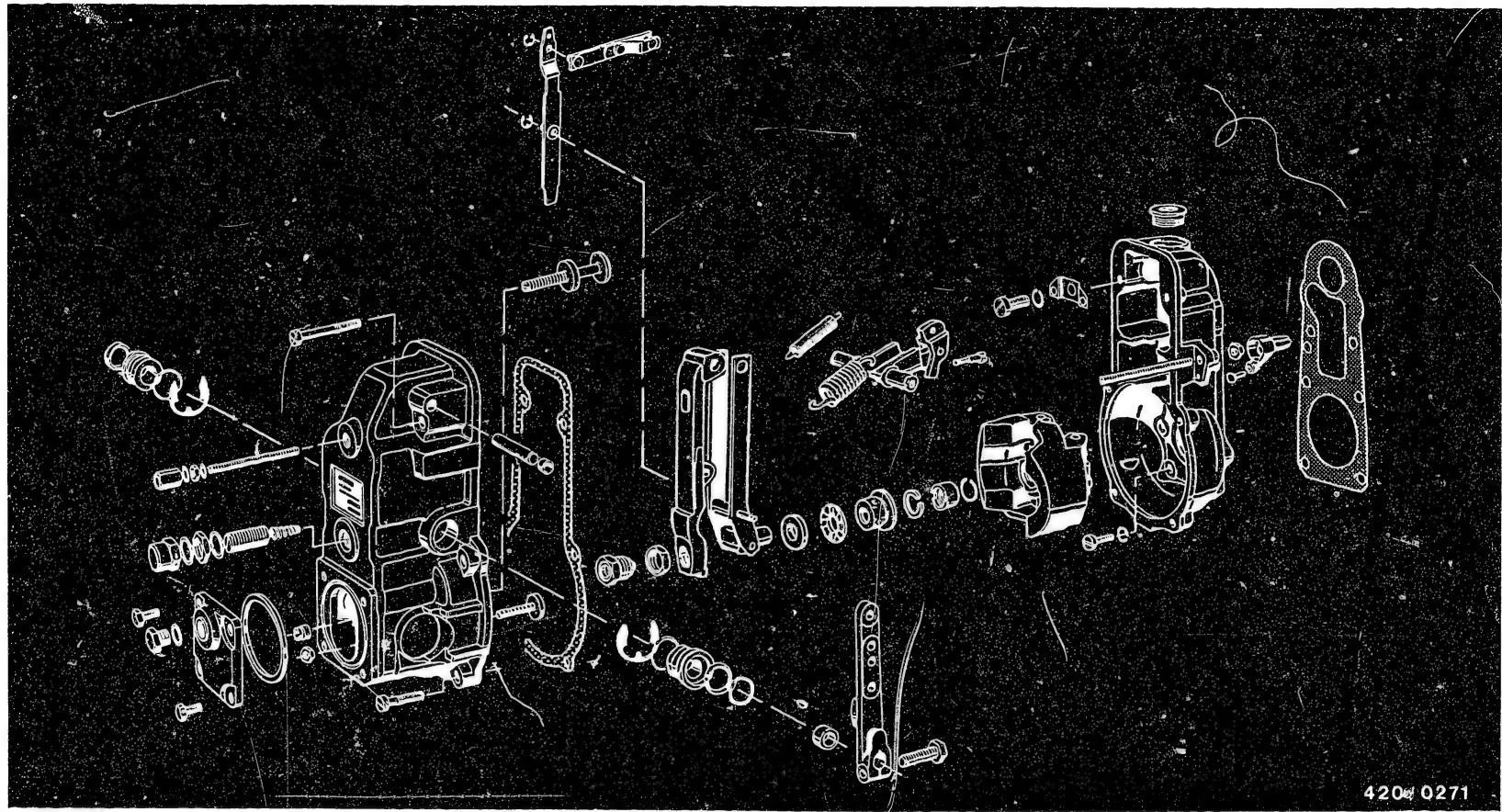
Exploded view  
RSV/RSUV governors



**A16**

Exploded view  
RSV/RSUV governors





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EXPLODED VIEW OF SERIES RSV..M..C., MW..A.., A..C.., P..A..

A17

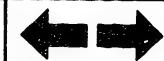
## Exploded view

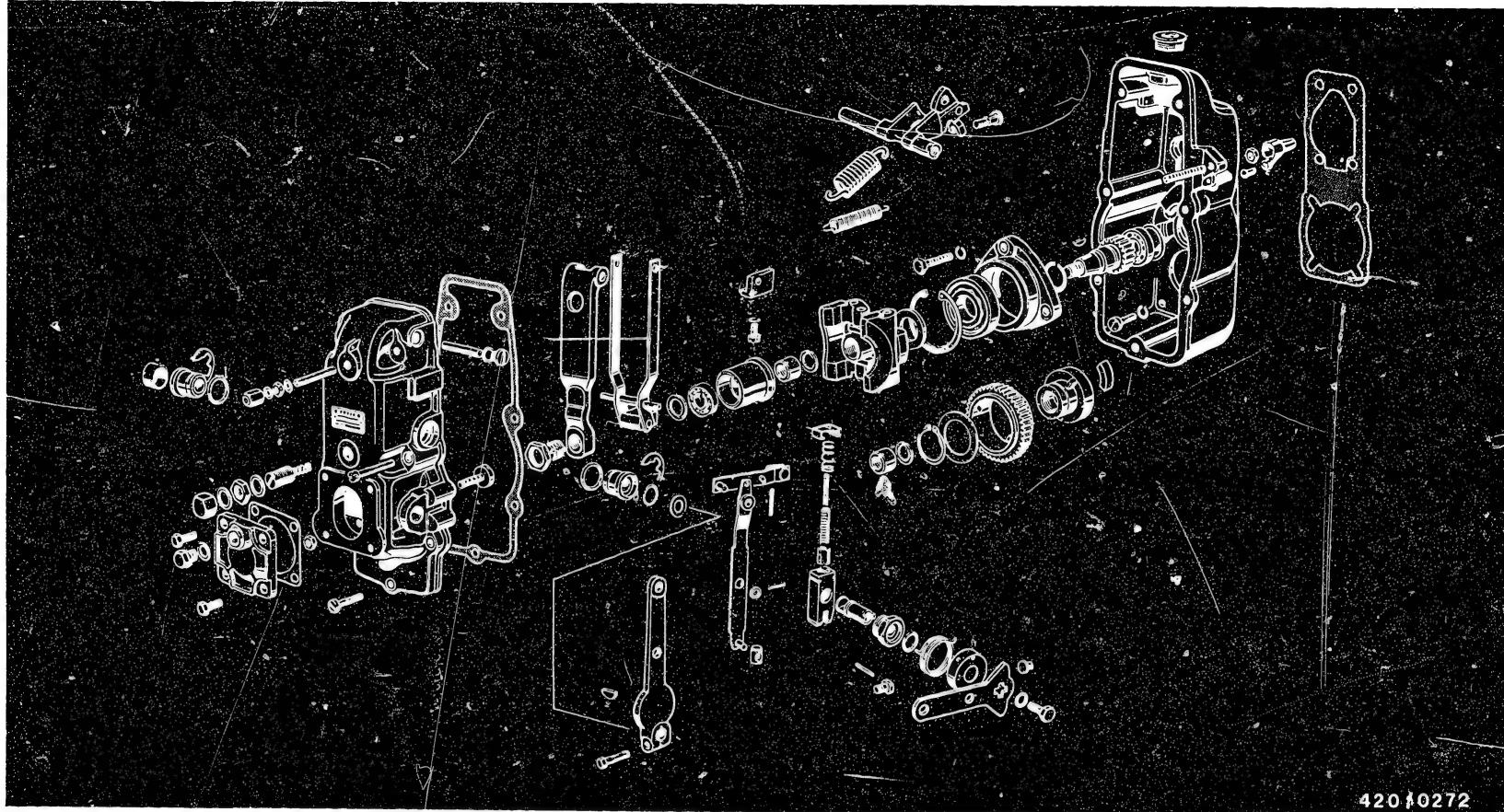
### RSV/RSUV governors



**A18**

## Exploded view





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EXPLODED VIEW OF SERIES RSUV..P..

**A19**

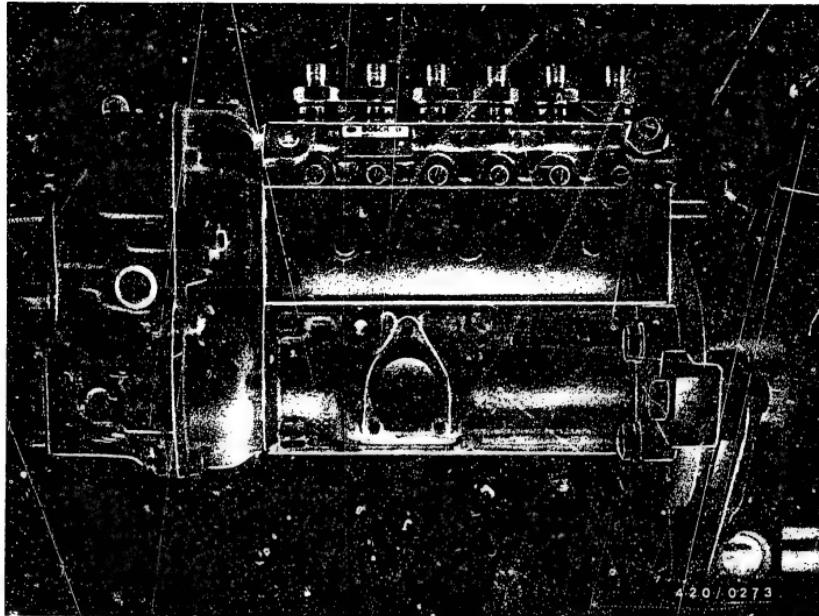
Exploded view  
RSV/RSUV governors



**A20**

Exploded view  
RSV/RSUV governors





## 6. Dismantling RSV/RSUV governors

### Requirements:

- Mount injection pump according to series and type of mounting (see repair instructions).
- Remove any built-on drive components (multi-disc clutch, gear or timing device) using corresponding KDEM or suitable commercially available tools.
- Mount drive coupling to suit cone diameter of camshaft and tighten.

**B 1**

Dismantling the governor  
RSV/RSUV governors

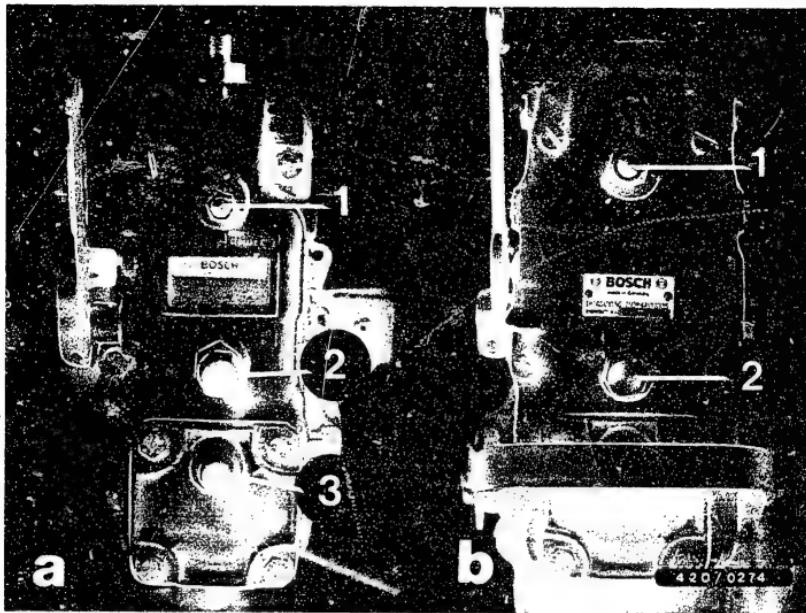


The procedure for dismantling and assembling the RSV and RSVU governors is basically identical. Therefore, special features which apply to the RSVU governor are only pointed out if they differ greatly from the RSV governor.

**B2**

Dismantling the governor  
RSV/RSUV governors



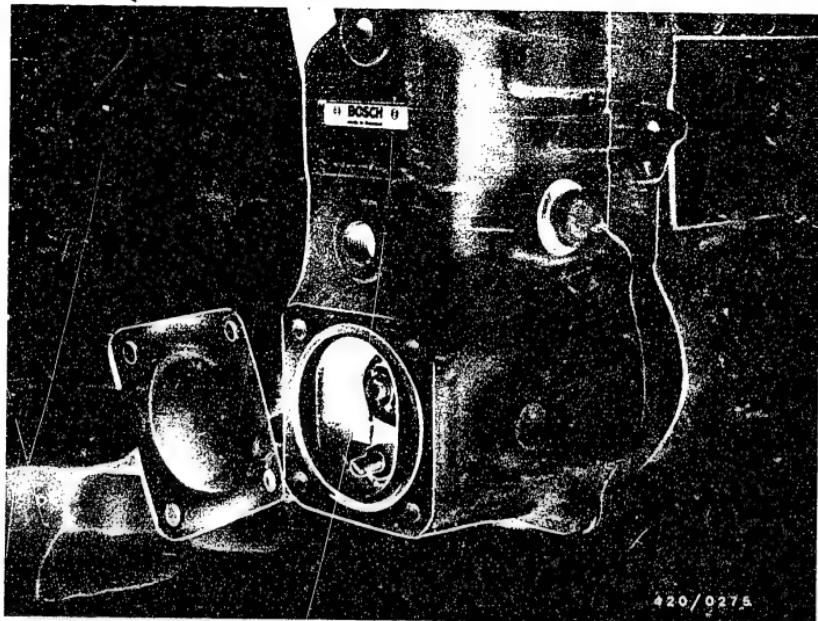


1 = Idle/shutoff stop screw

2 = Auxiliary spring

3 = Oil inspection screw

Unscrew idle/shutoff stop screw, idle auxiliary spring and oil inspection screw.

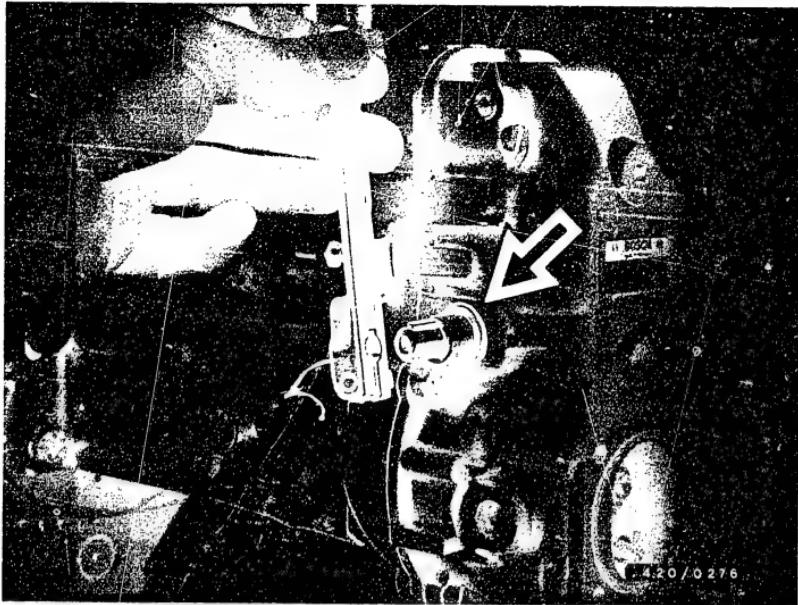


Loosen closing cover fastening screws and remove closing cover. Catch escaping oil.

**B4**

Dismantling the governor  
RSV/RSUV governor



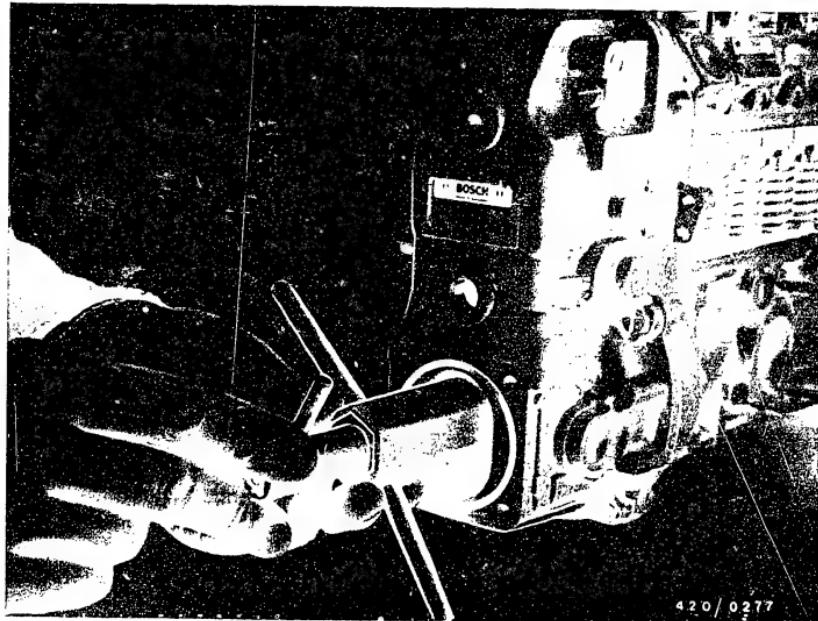


Loosen control-lever clamping screw. Remove lever from shaft. Take out Woodruff key. Remove shims and bushing.

**B5**

Dismantling the governor  
RSV/RSUV governors





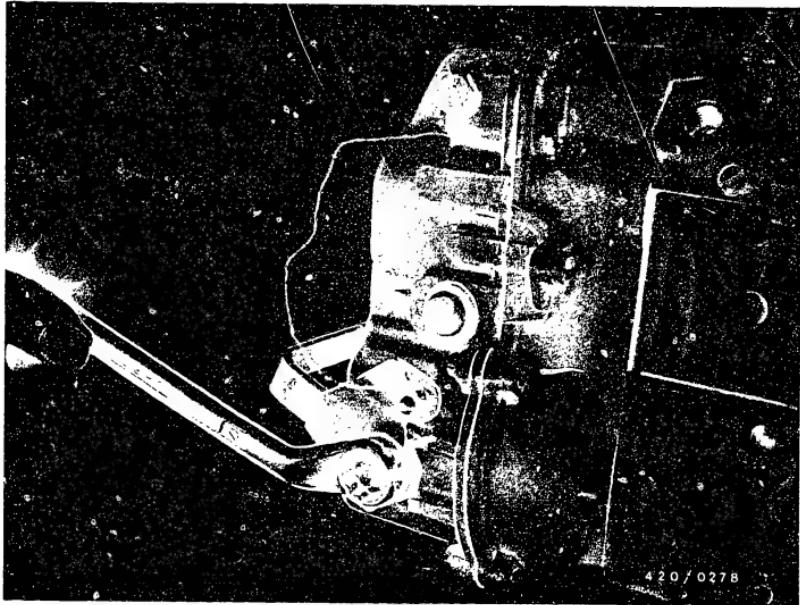
420/0277

Using socket wrench set KDEP 2966 or KDEP 2968 or KDEP 1541 - depending on version of governor - unscrew torque-control spring retainer out of tensioning lever.

**B6**

Dismantling the governor  
RSV/RSUV governors



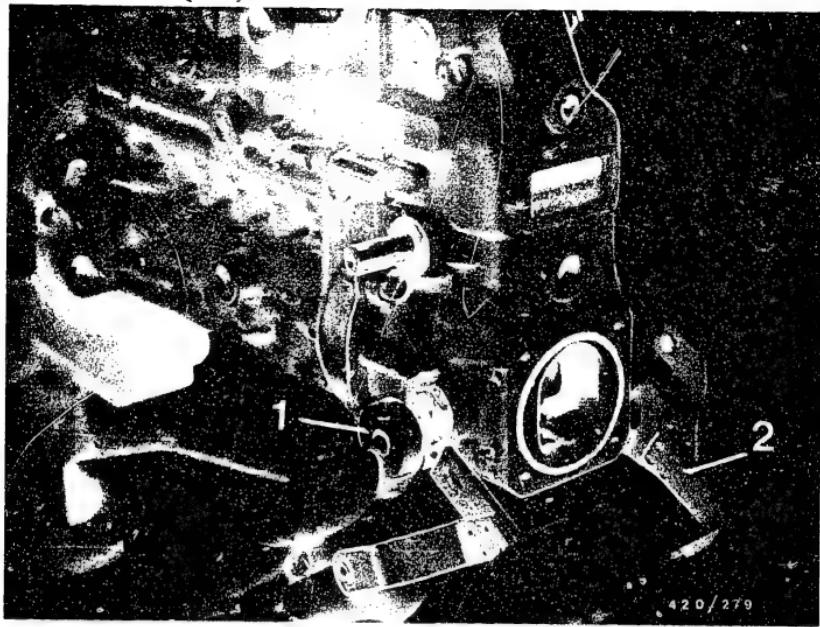


In the case of governors with a stop lever, loosen and unscrew fastening/guide screws.

**B7**

Dismantling the governor  
RSV/RSUV governors





1 = Spring retainer

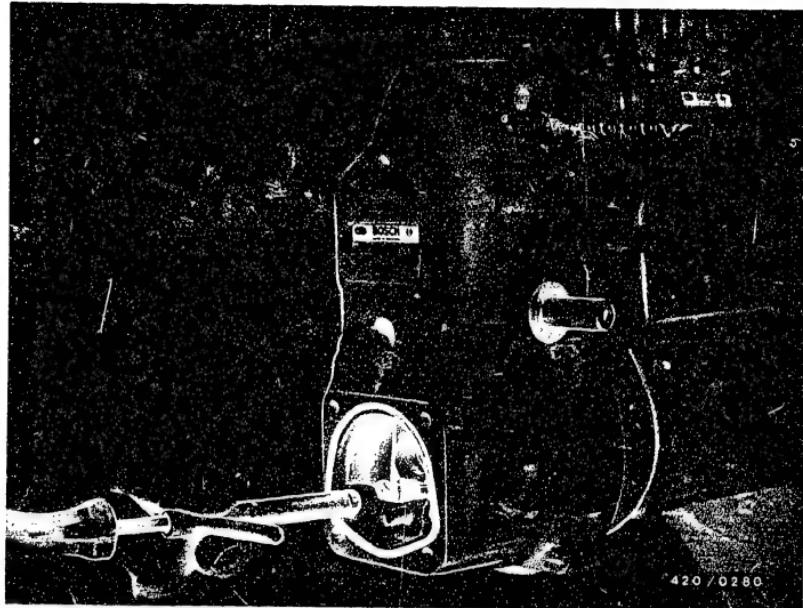
2 = Stop lever

Remove stop lever and spring retainer assembly.

**B8**

Dismantling the governor  
RSV/RSUV governors



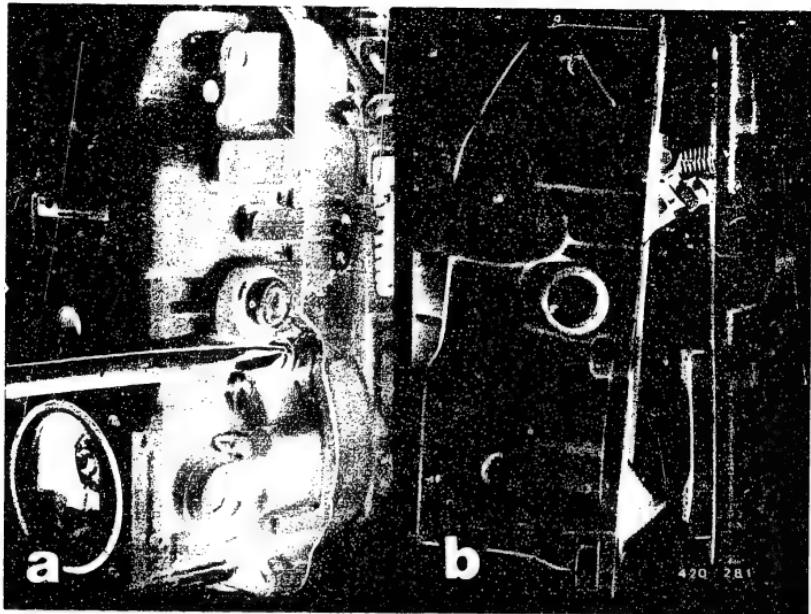


In the case of governors with externally adjustable sleeve position, loosen and unscrew slotted round nut (adjusting screw lock nut) with socket wrench KDEP 1542.

**B9**

Dismantling the governor  
RSV/RSUV governors





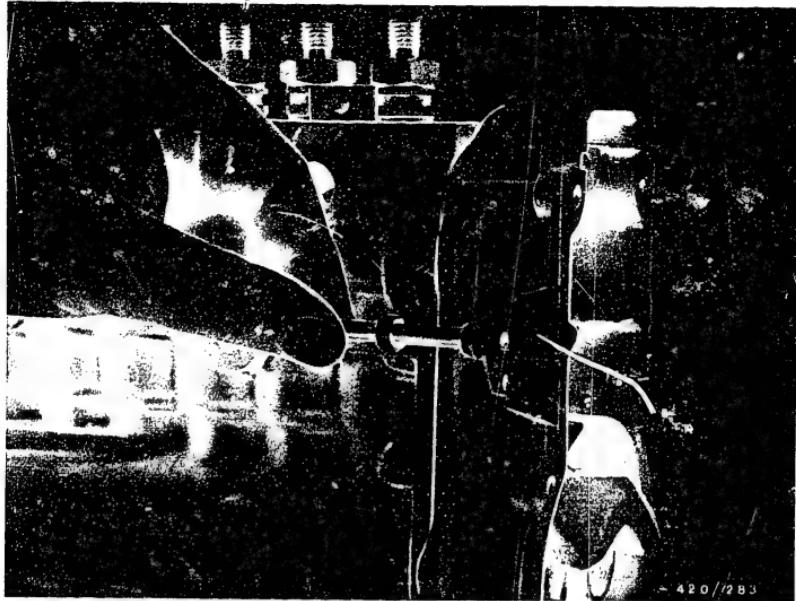
Unscrew governor cover fastening screws and loosen cover from governor housing by tapping lightly with a rubber hammer.

Catch escaping oil.

Unhook governor connecting strap from injection-pump control rod.

Using pointed pliers, unhook starting spring from eye in governor housing.

Lay governor cover assembly to one side.



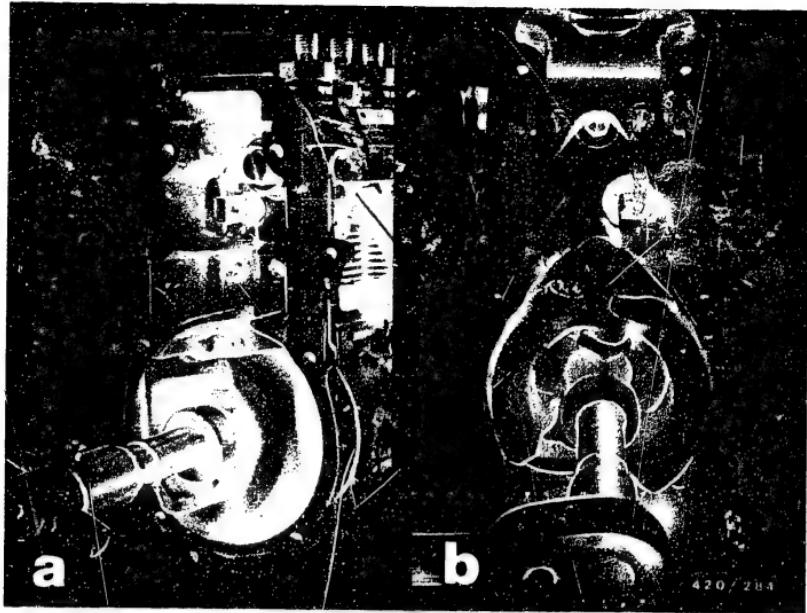
After loosening the lock nut, screw maximum-speed stop screw out of governor housing.

If any, unscrew air filter from top side of governor housing.

**B11**

Dismantling the governor  
RSV/RSUV governors





Picture a = RSV governor

Picture b = RSUV governor

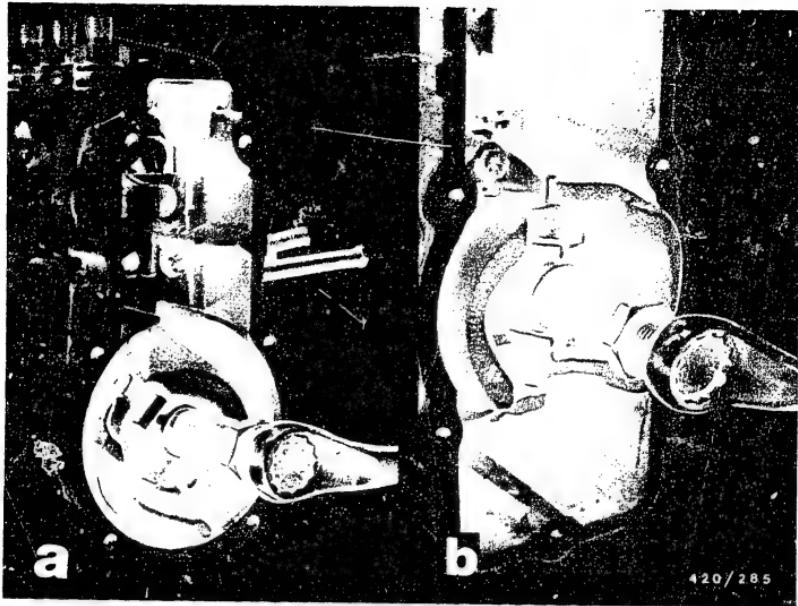
Using pin-type socket wrench KDEP 2998, loosen governor assembly round nut and unscrew.

Raise all roller tappets with appropriate tappet holders (except P pump).

**B 12**

Dismantling the governor  
RSV/RSUV governors





Picture a = RSV governor

Picture b = RSVU governor

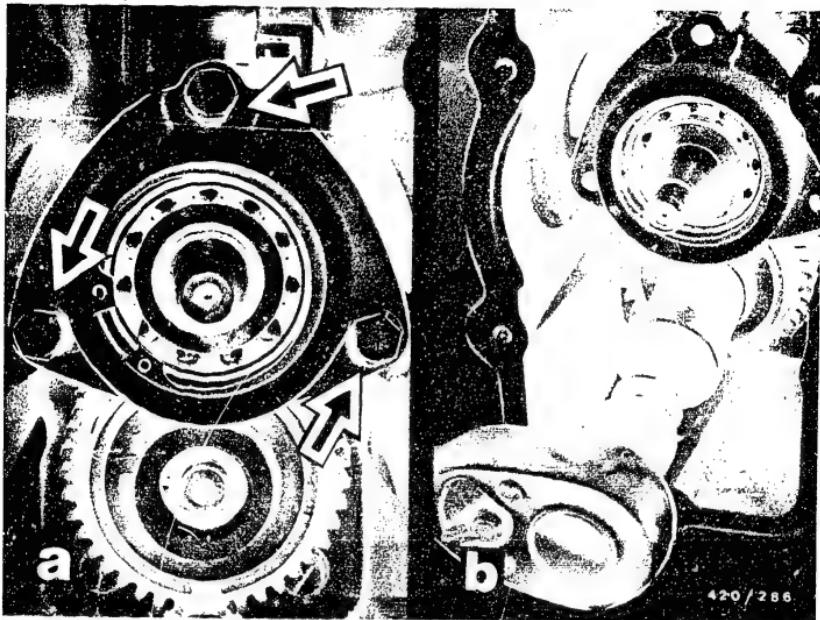
Using puller KDEP 2886, force governor assembly off cone of camshaft.

**B 13**

Dismantling the governor

RSV/RSUV governors



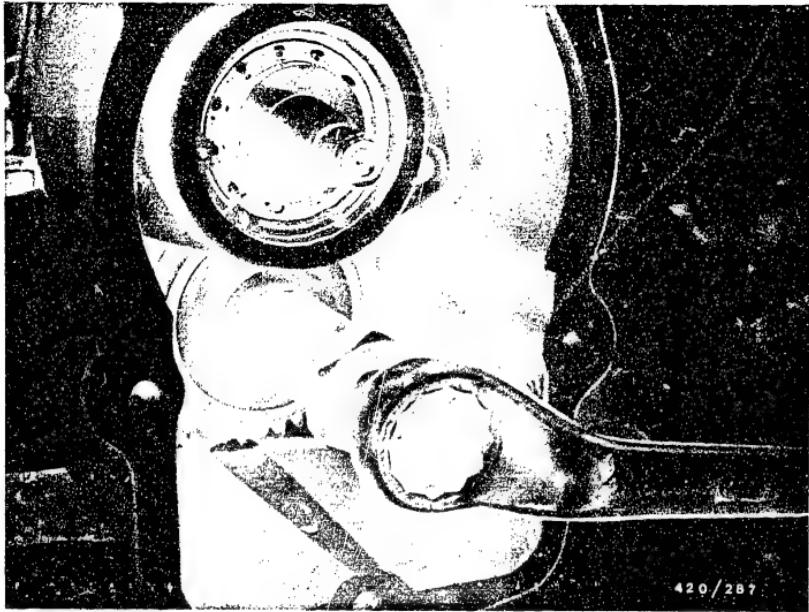


420/286

### 6.1 Dismantling the RSUV governor drive

Unscrew bearing end plate fastening screws (see picture a - arrows).

Using pin-type socket wrench KDEP 2998, unscrew drive gear round nut (see picture b).



Using puller KDEP 2886, loosen drive gear from camshaft.

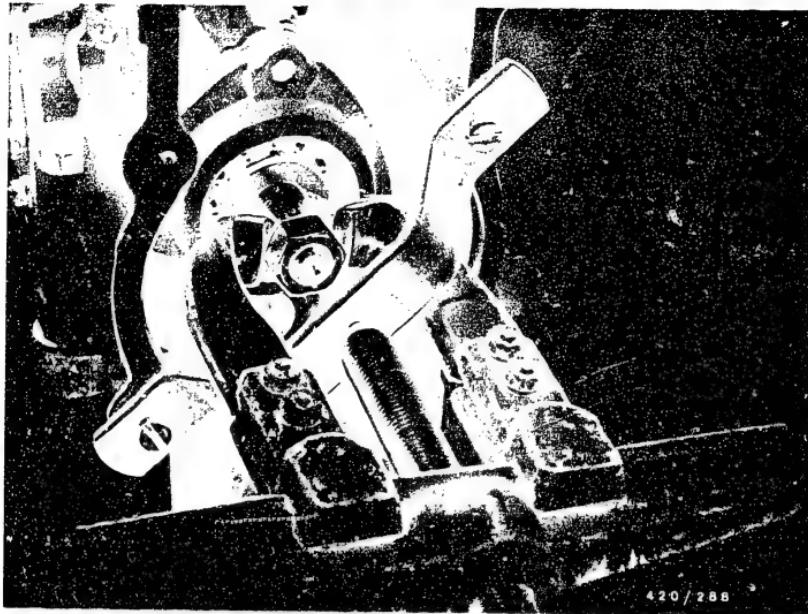
Note:

Drive gear cannot be removed at this stage because of its meshing with the governor shaft gear.

**B15**

Dismantling the governor  
RSV/RSUV governors





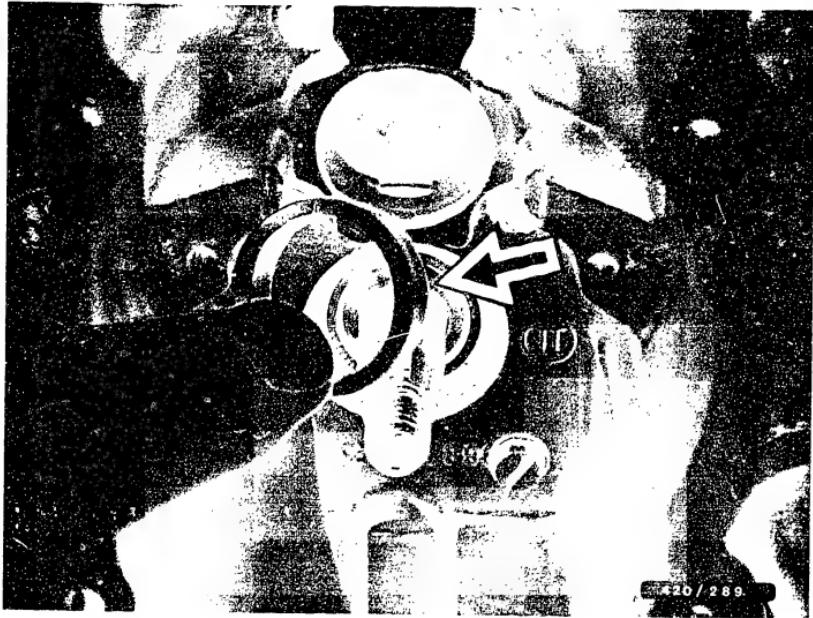
420 / 288

Screw hexagon nut onto governor shaft threaded stub and secure puller bracket KDEP 1587 on governor housing (recess centered with respect to governor shaft).

Position two-claw puller behind hexagon nut and, by supporting on puller bracket, pull governor shaft together with bearing end plate out of governor housing.

Note:

When the governor shaft is pulled off, the drive gear is simultaneously stripped from the camshaft cone.

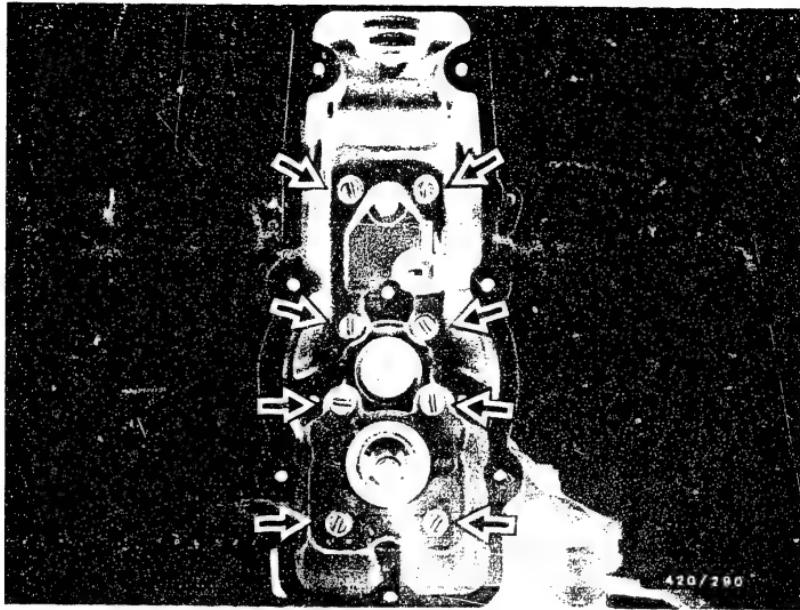


Remove shim from deep-groove ball bearing pilot (see picture, arrow).

**B17**

Dismantling the governor  
RSV/RSUV governors



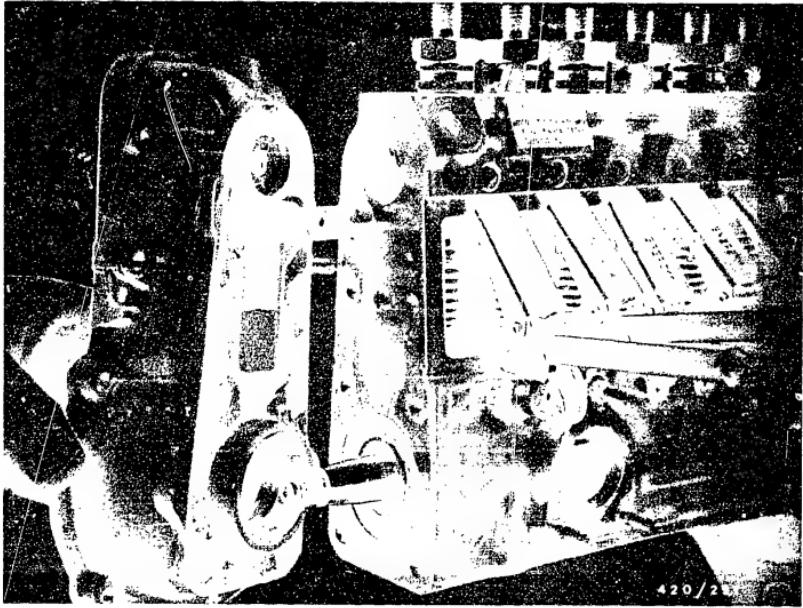


Unscrew governor housing fastening screws (see picture, arrows).

**B18**

Dismantling the governor  
RSV/RSUV governors





420/2

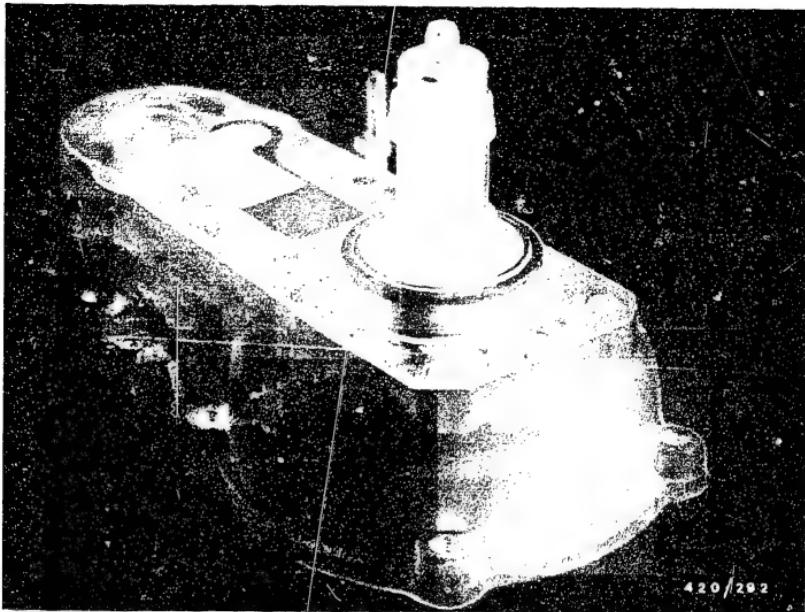
Loosen governor housing by carefully tapping with a rubber hammer and withdraw from pump housing pilot.

**B19**

Dismantling the governor

RSV/RSUV governor



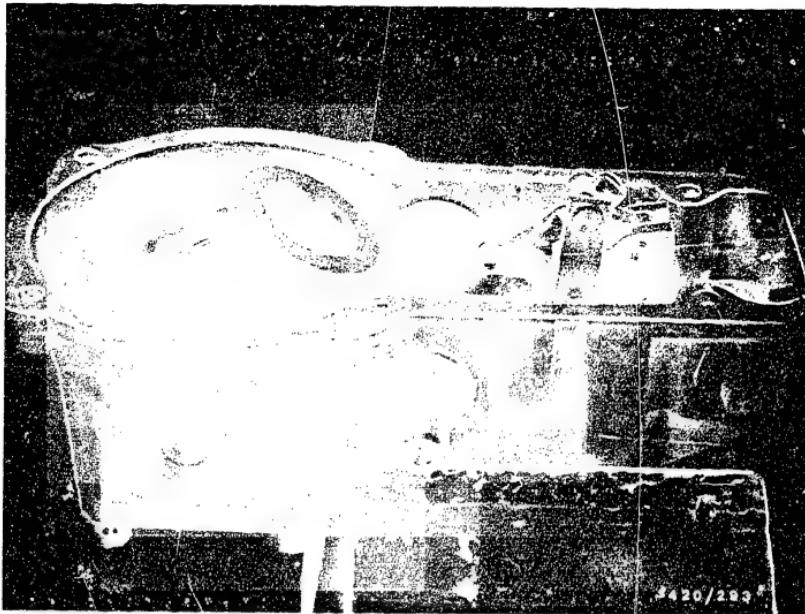


Using puller KDEP 9995/0/1, pull bearing outer race of governor-end camshaft bearing out of governor housing. If there is no detectable damage to the bearing outer race, it is not removed if the governor housing is being re-used.

**B20**

Dismantling the governor  
RSV/RSUV governors

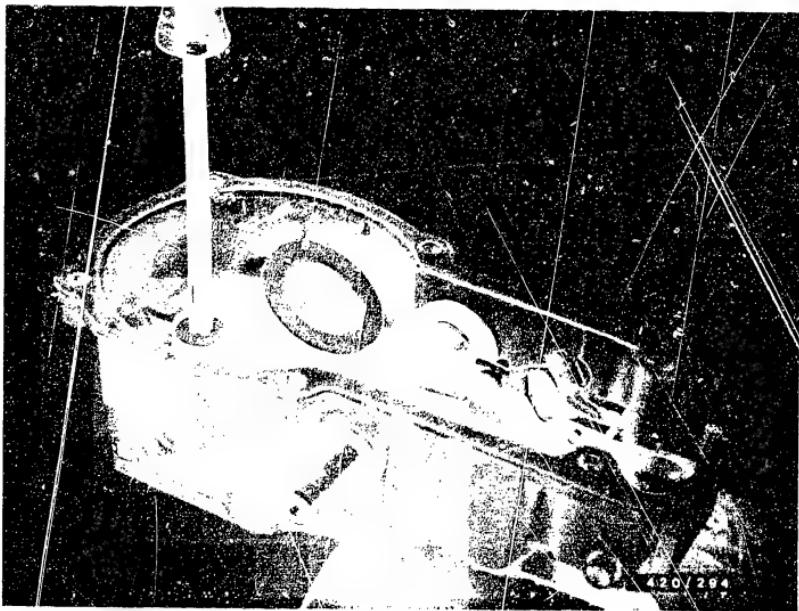




### 6.2 Dismantling the governor cover

The procedure for dismantling the RSV.. and RSVU governor cover is the same.

Clamp governor cover in vise (with protective jaws or in vise with ground jaws).

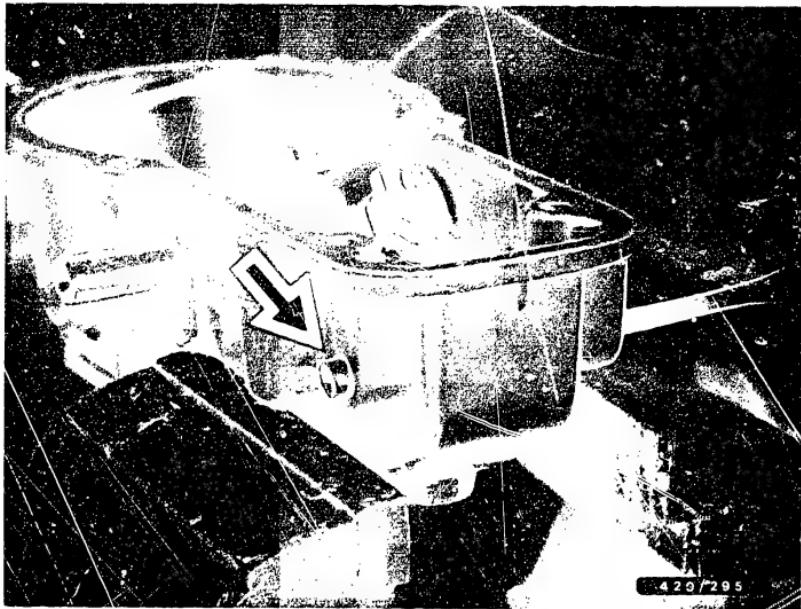


Loosen full-load stop screw lock nut and, using Philips screwdriver, unscrew full-load stop entirely.

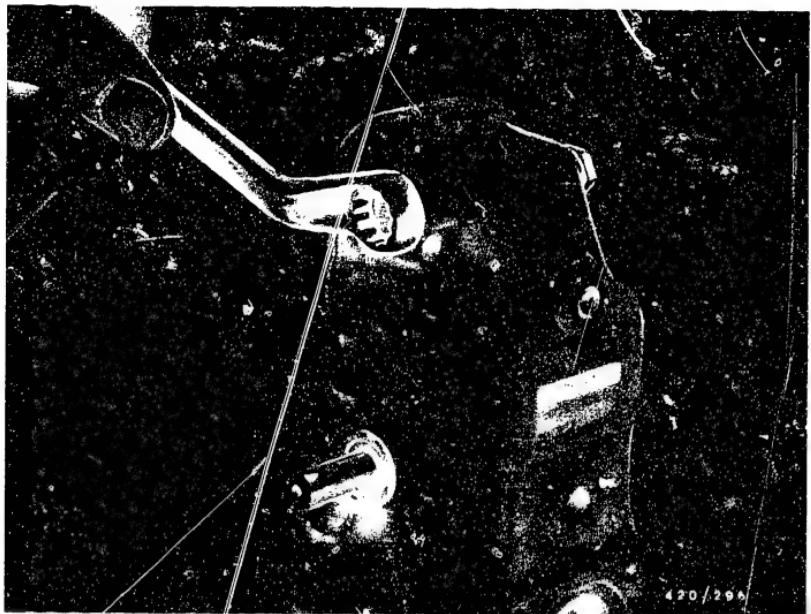
**B22**

Dismantling the governor  
RSV/RSUV governors





Insert suitable drift into one of the two end covers. Knock end cover axially inward. This presses the guide pin for guide and tensioning lever against the other end cover and presses the latter outward (see picture, arrow). Introduce the drift into the hole which is now clear and knock the second end cover out of its mounting hole.

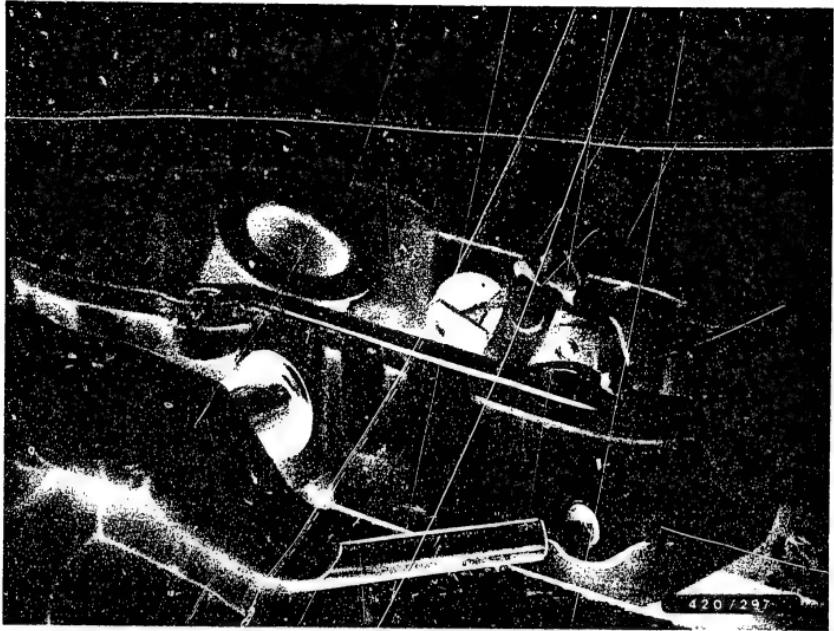


In the case of governors which have screw plugs instead of end covers, unscrew the screw plugs.

**B24**

Dismantling the governor  
RSV/RSUV governors



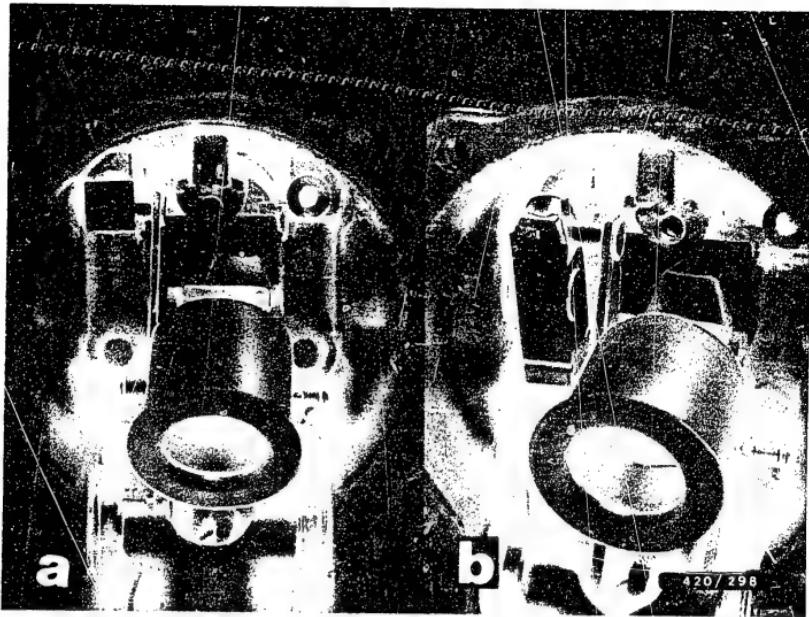


Remove guide pin from governor cover.

**C1**

Dismantling the governor  
RSV/RSUV governors





Picture a = Governor without stop lever  
Picture b = Governor with stop lever

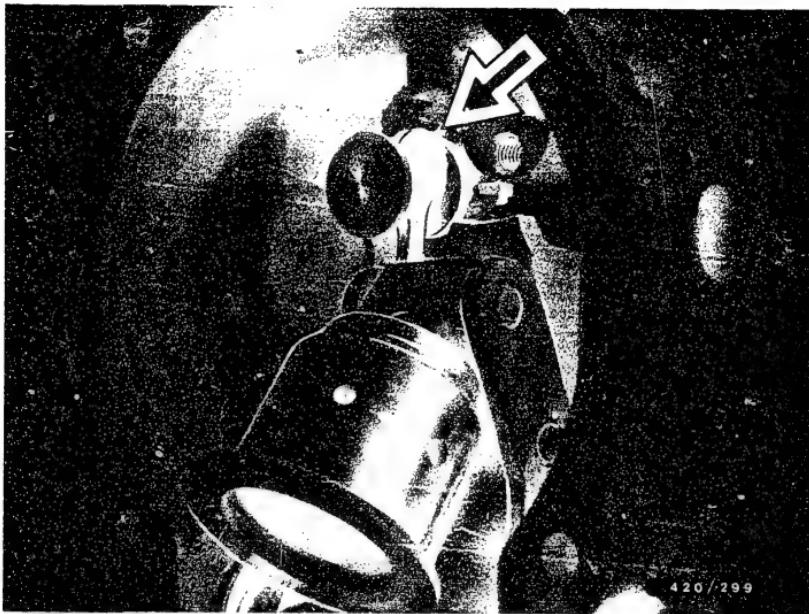
Slide fulcrum lever bearing pin out of pivot pin toward center of cover (see picture, arrow).

**C2**

Dismantling the governor

RSV/RSUV governors



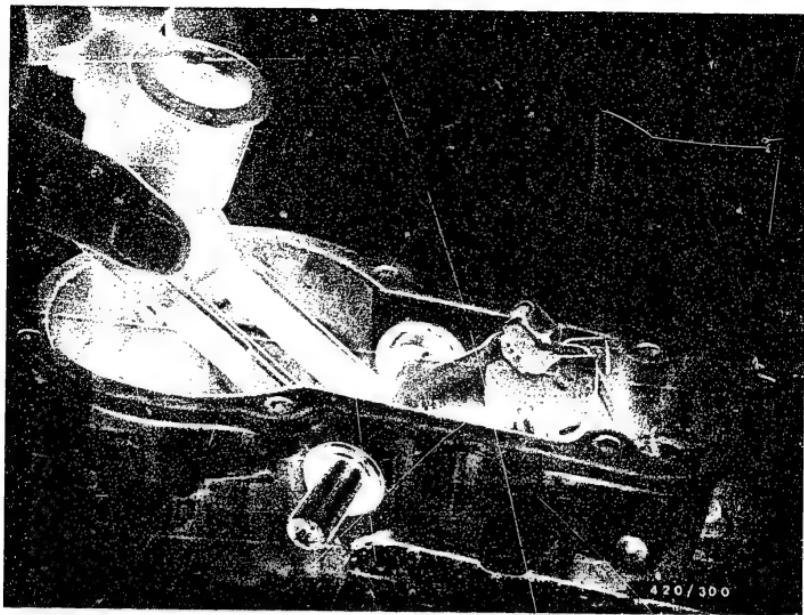


In the case of governors without a stop lever with externally adjustable sleeve position, the fulcrum lever is guided in a wide annular groove of the adjusting screw (see picture, arrow). The fulcrum lever is released from its guide groove by sliding the entire guide lever/fulcrum lever pack toward the center of the governor cover.

**C3**

Dismantling the governor  
RSV/RSUV governors



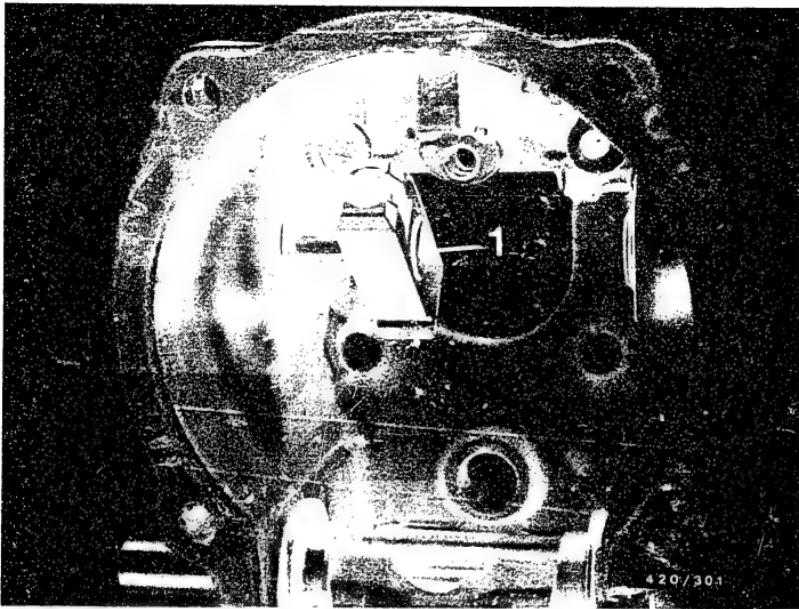


Remove fulcrum lever/guide lever assembly.  
To facilitate removal, it is useful to raise the swiveling lever slightly and to withdraw the lever assembly downward under the swiveling-lever shaft (see picture).

**C4**

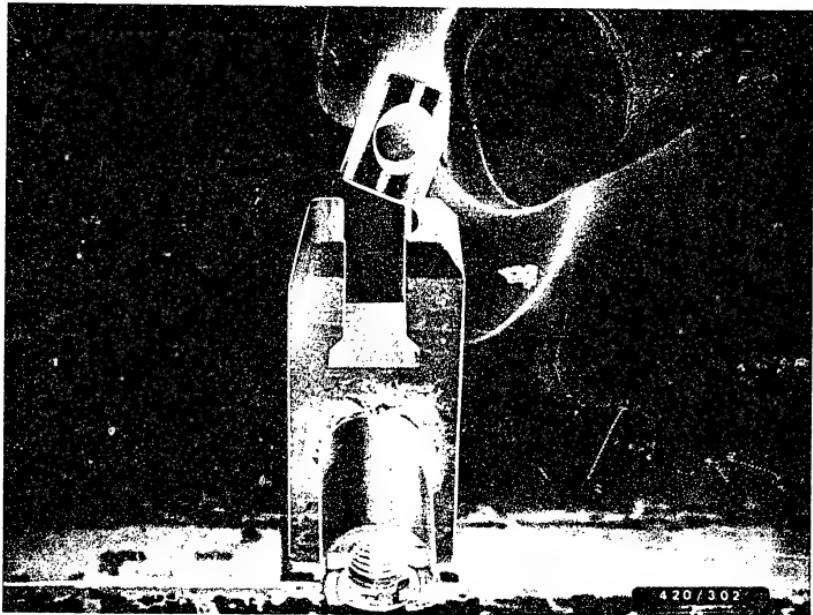
Dismantling the governor  
RSV/RSUV governors





1 = Link

In the case of governors with a stop lever, the link is removed inward from the corresponding guide bushing.



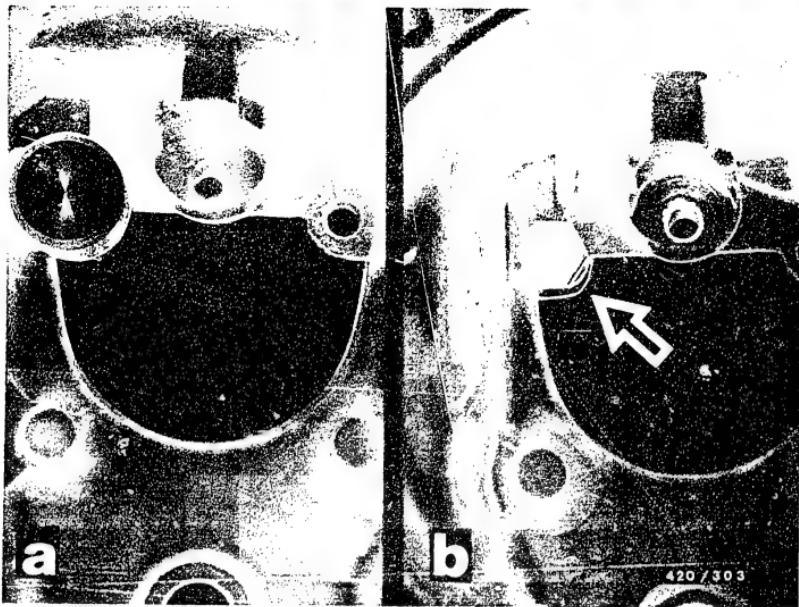
Slide guide pin out of link and remove (see picture).

**C6**

Dismantling the governor

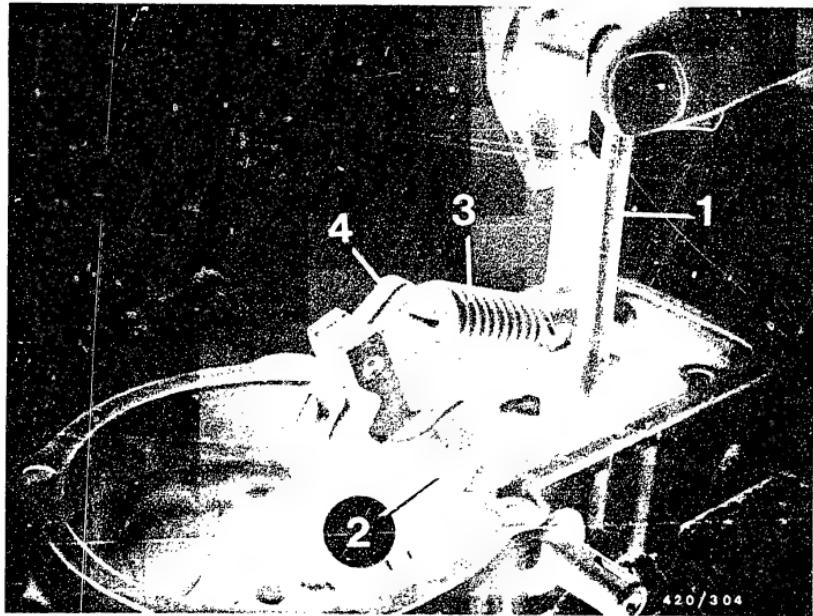
RSV/RSUV governors





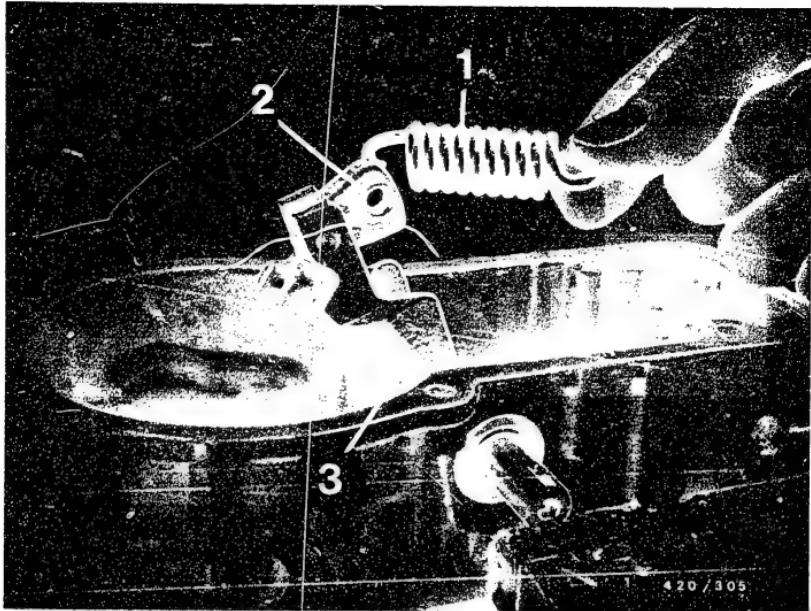
Picture a = Governor without stop lever  
Picture b = Governor with stop lever

Unscrew sleeve position adjusting screw (see picture, arrow) inward out of governor cover.



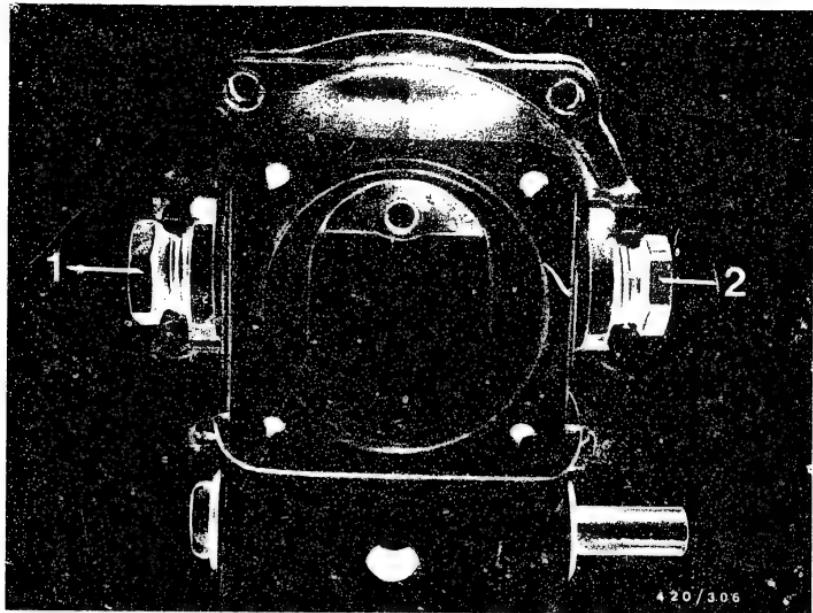
- 1 = Tensioning lever
- 2 = Swiveling lever
- 3 = Governor spring

Remove tensioning lever upward from under swiveling lever. Unhook governor spring from tensioning lever.



- 1 = Governor spring
- 2 = Rocker
- 3 = Swiveling lever

Unhook governor spring from swiveling lever rocker.



1 = Screw plug

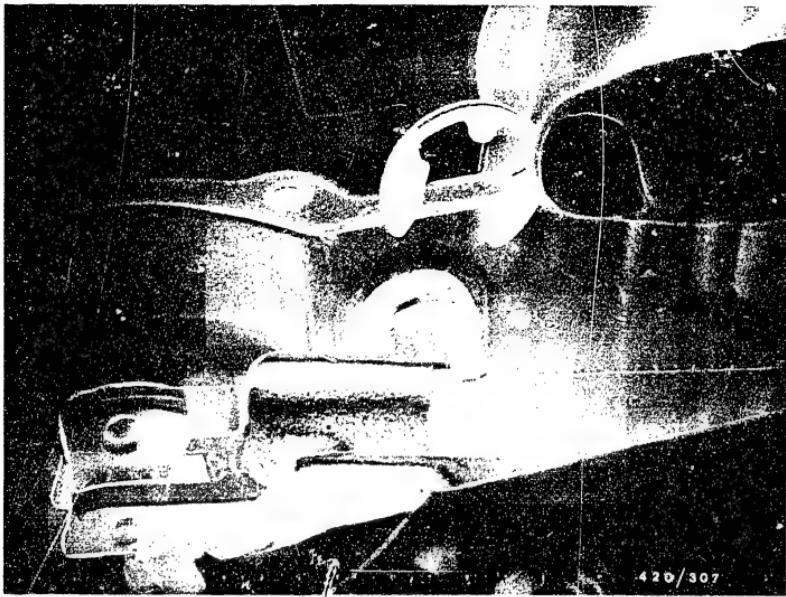
2 = Guide bushing

In the case of governors with a stop lever, unscrew screw plug and guide bushing out of governor cover.

**C10**

Dismantling the governor  
RSV/RSUV governors



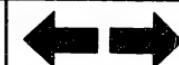


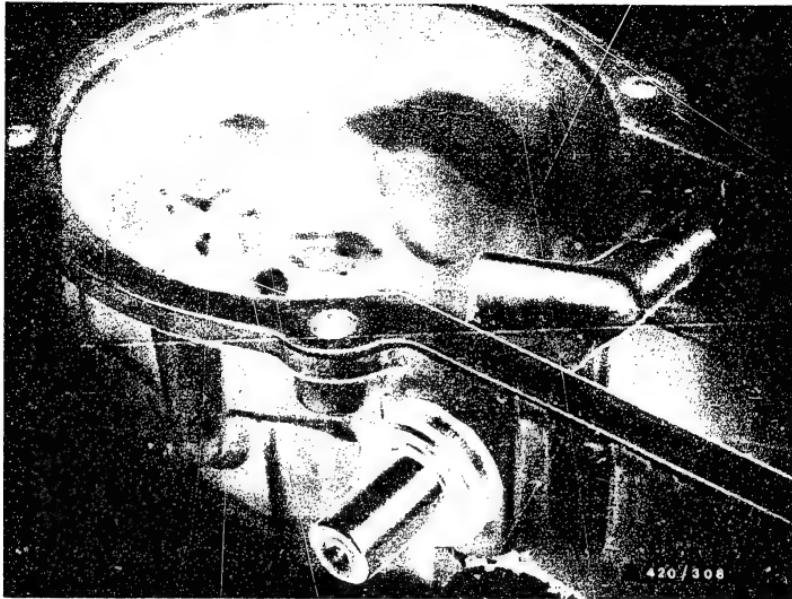
420/307

Remove both retainers from control-lever shaft (see picture).

**C11**

Dismantling the governor  
RSV/RSUV governors





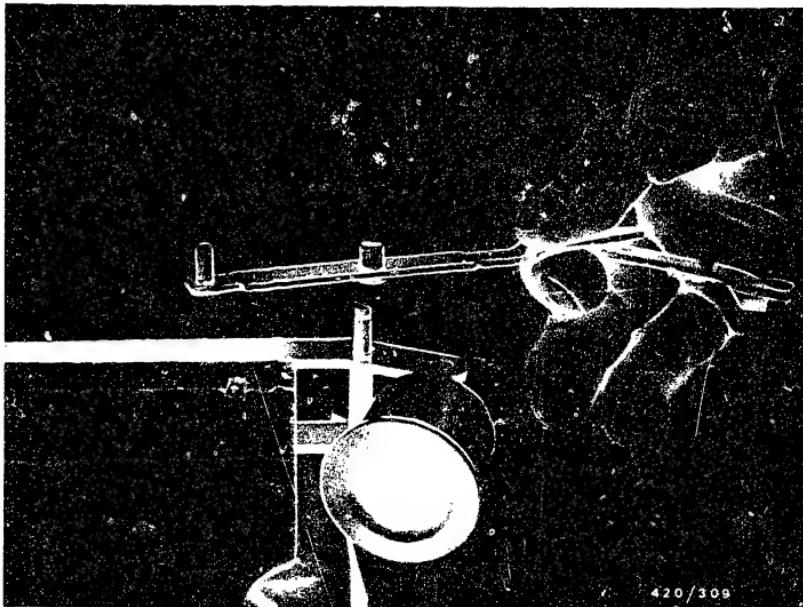
420/308

Using a rubber hammer, knock through control-lever shaft in the direction of the shorter shaft end. The guide bushing is thereby pushed out of the governor cover. Remove guide bushing and lay to one side. Repeat the operation toward the other side and remove the second guide bushing in the same manner. Remove swiveling lever from governor cover. Remove O-rings from guide bushings.

**C12**

Dismantling the governor  
RSV/RSUV governors





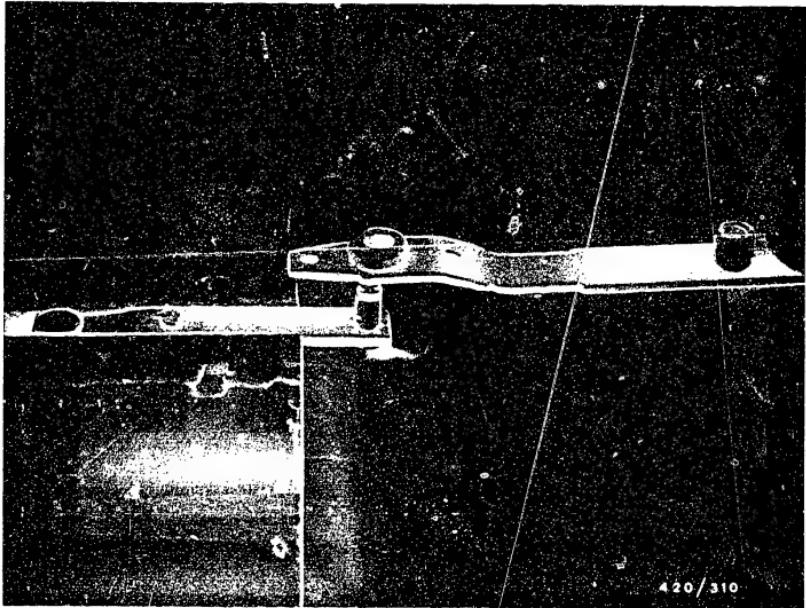
420/309

Clamp guide lever assembly in vise. Remove retainer from fulcrum lever locating pin and remove fulcrum lever (see picture).

**C13**

Dismantling the governor  
RSV/RSUV governors





Force retainer off strap. Remove fulcrum lever.

**C14**

Dismantling the governor  
RSV/RSUV governors



## 7. Cleaning the parts

Wash the parts in low-inflammability, commercially available cleaning agent e.g. Chlorothene NU.  
Then blow off with compressed air.

## Safety regulations when handling combustible liquids

Decree on Working with Combustible Liquids (Vbf) issued by the Federal Ministry of Labor (BmA).

Safety Rules for Handling Chlorinated Hydrocarbons for the workshop ZH1/222

for the employee ZH1/119

issued by the Central Association of German Employers' Liability Insurance Associations (Central Association for Accident Prevention and Industrial Medicine)  
Langwartweg 103, 5300 Bonn 5.

In countries outside the Federal Republic of Germany, observe the corresponding local regulations.

## 8. Examining the individual components

Replace worn or damaged parts.

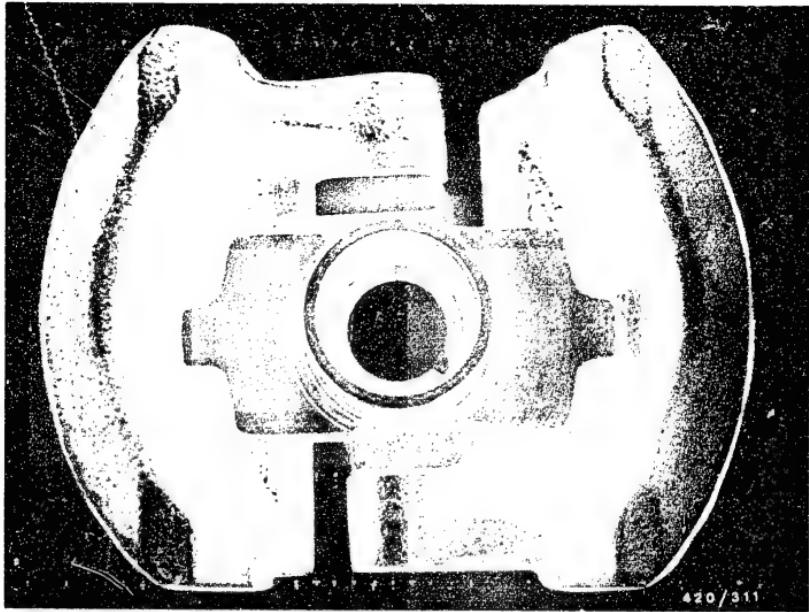
Always replace flat flange gaskets, radial-lip-type oil seals, O-rings and rubber buffers (RSUV).

**C16**

Examining the components

RSV/RSUV governors





### Checking the governor assembly

Check the governor assembly for worn and/or stiff fly-weight assemblies.

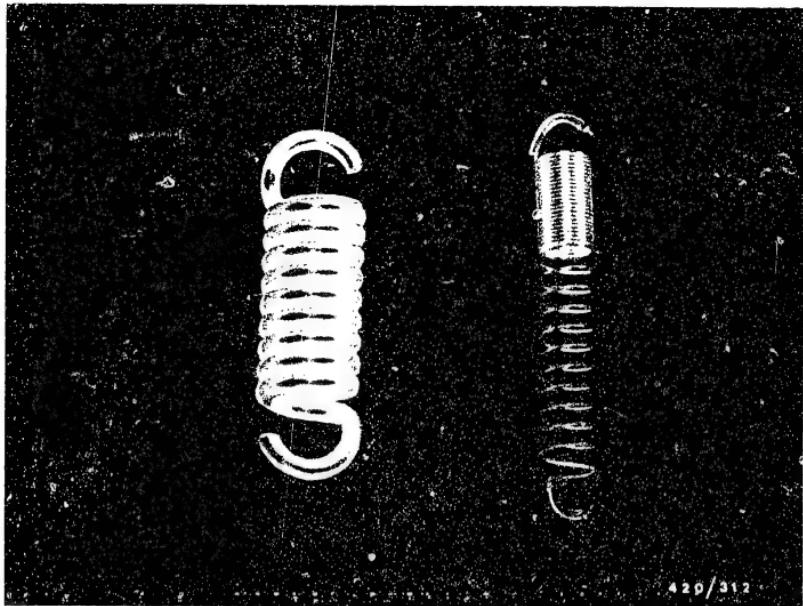
#### Note:

If stiff, eliminate any resin residues by washing out.

**C17**

Examining the components  
RSV/RSUV governors





429/312

### Checking the governor springs

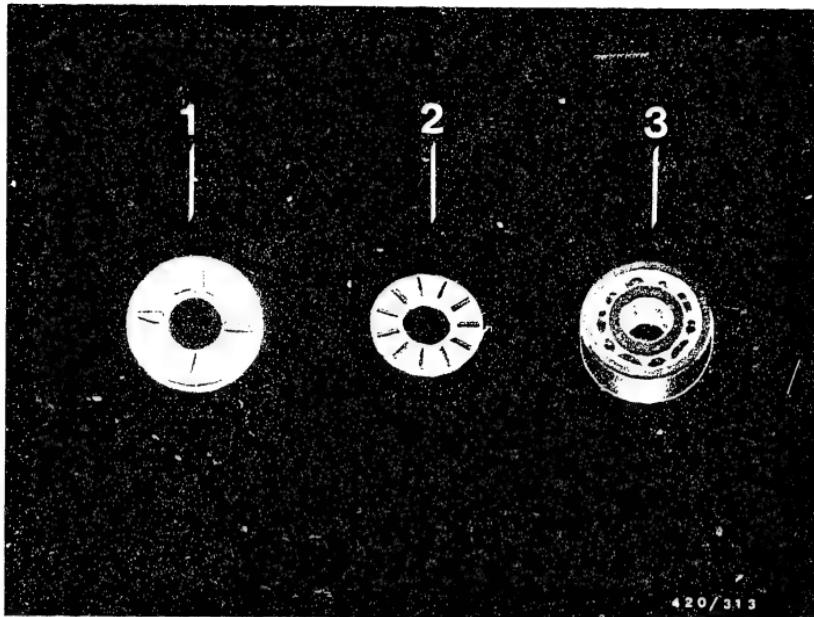
Governor springs that are corroded or whose surfaces are damaged must be replaced due to the danger of breakage.

Check the starting spring in particular for elongation (see picture).

**C18**

Examining the components  
RSV/RSUV governors



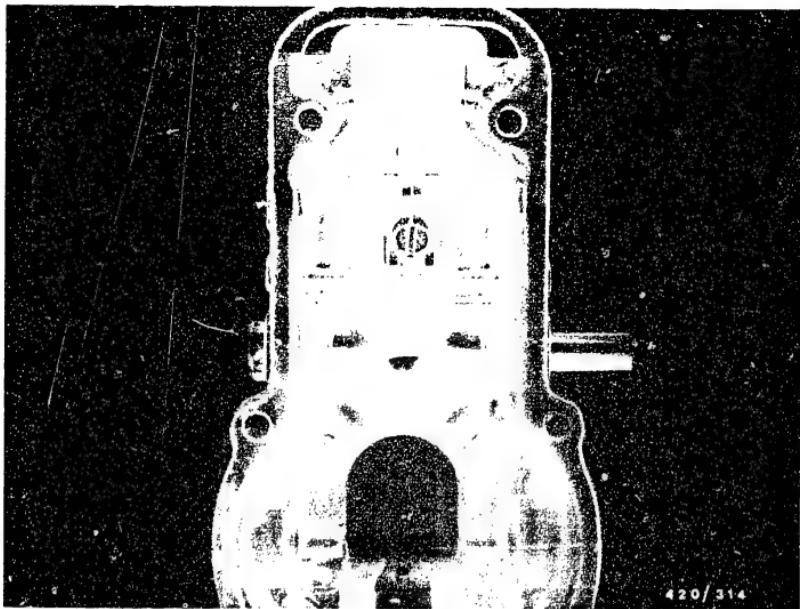


420/313

- 1 = Bearing plate
- 2 = Axial needle bearing
- 3 = Deep-groove ball bearing

#### Checking the bearings of the sliding sleeve

Check the various types of bearing of the sliding sleeve for wear and replace if defective.

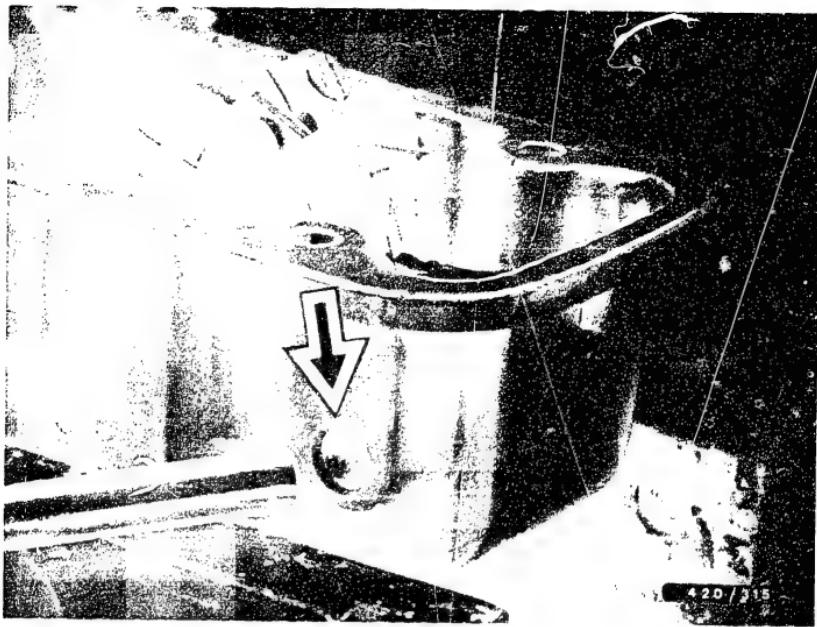


#### Checking the guide bushings and control-lever shaft

Check bearings for wear, and check control-lever shaft for freedom of movement.

If there is noticeable play between guide bushings and control-lever shaft, replace bushings.

If the control-lever shaft is stiff, replace guide bushings and/or control-lever shaft.



Checking the bearings of the tensioning and guide levers

Check bearing pin mounting hole (see picture, arrow) for wear.

If it is worn, replace governor cover.

Checking the tensioning lever, fulcrum lever, guide lever and strap

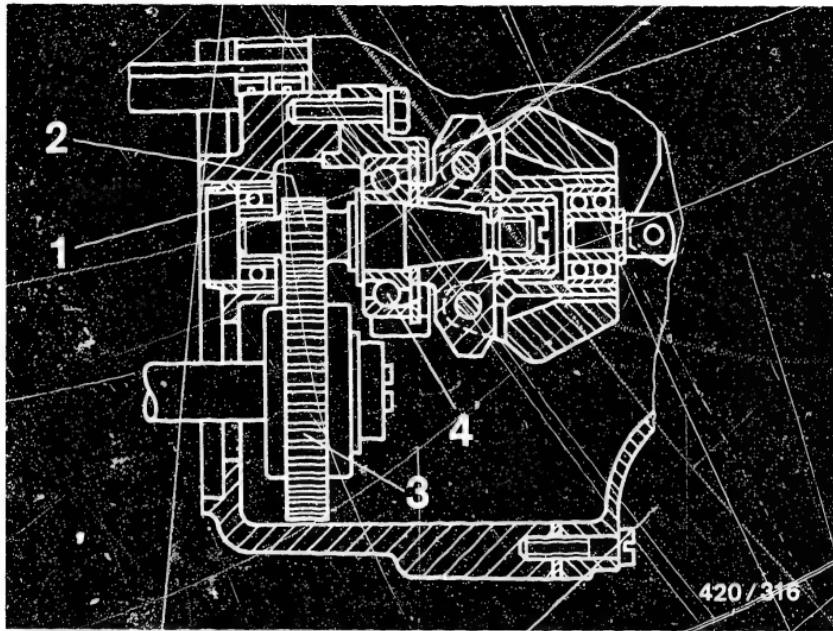
Check all transmission components for parallel alignment, accuracy of fit and freedom of movement.

Replace transmission components if worn or bent.

Note:

Efficient operation of these components is of decisive importance with regard to smooth engine running. If there is friction or too much play, the control rod is unable to follow the movements of the governor with sufficient speed.

The running of the engine is consequently adversely affected.



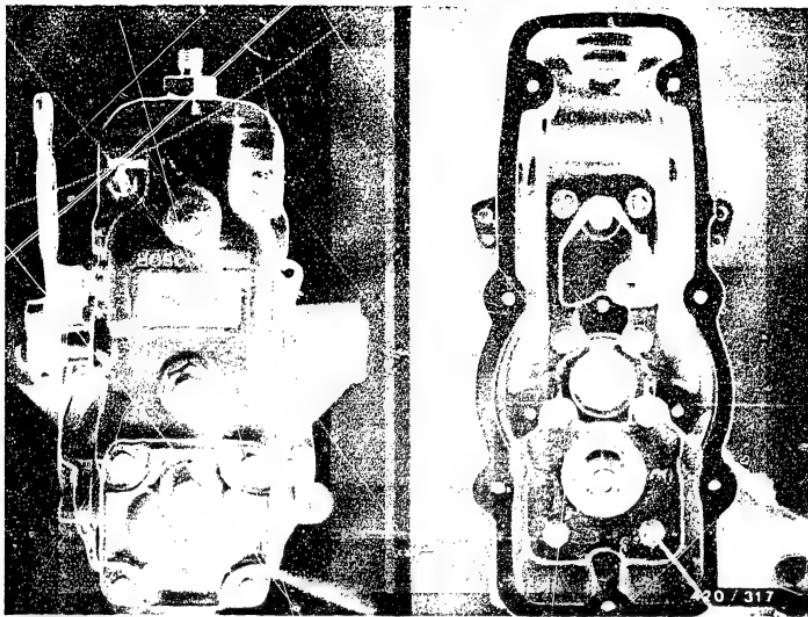
1 = Deep-groove ball bearing      3 = Governor shaft gear  
2 = Drive gear                      4 = Angular-contact ball bearing

#### Checking the governor drive (RSUV)

Visually examine the governor drive for:

- Worn drive gear
- Worn governor shaft gear
- Wear on deep-groove or angular-contact ball bearing

If defective, replace drive and/or bearing components.



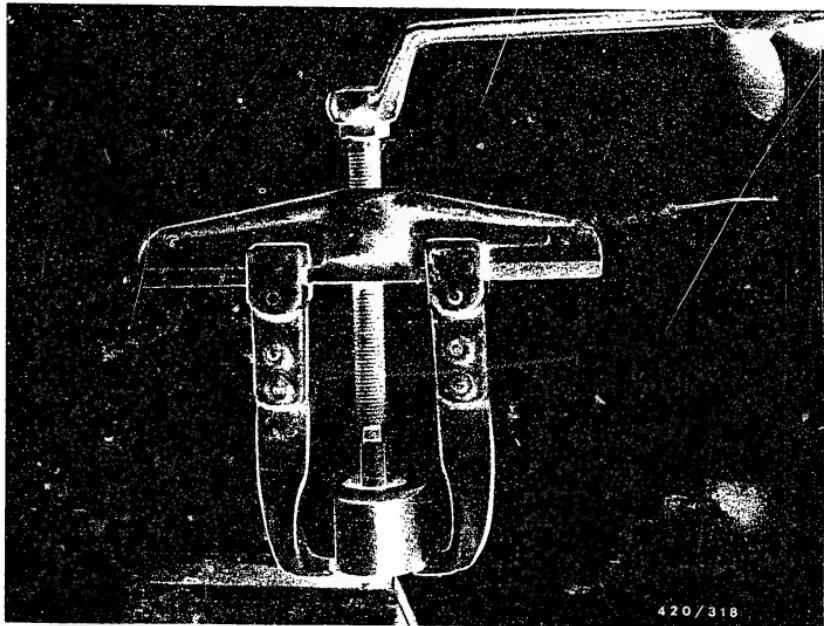
30 / 317

### Checking the governor cover and housing

Perform the following visual examination:

- Threads on stay bolts and inserts
- Camshaft bearing in governor housing for cracks
- Flatness of sealing surfaces.





## 9. Repairing the governor

### Replacing the sliding sleeve bearing

#### 9.1 Sliding sleeve with bearing plate (plain bearing)

Using a commercially available two-leg pulier, remove sliding sleeve from guide lever sleeve carrier (see picture).

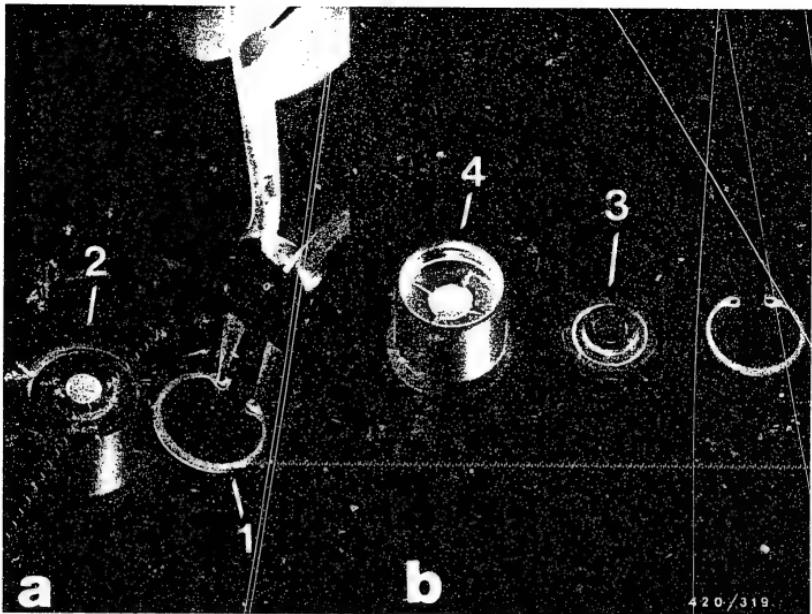
Remove sleeve-position adjusting shims from sleeve carrier.

**D1**

Repairing the governor

RSV/RSUV governors

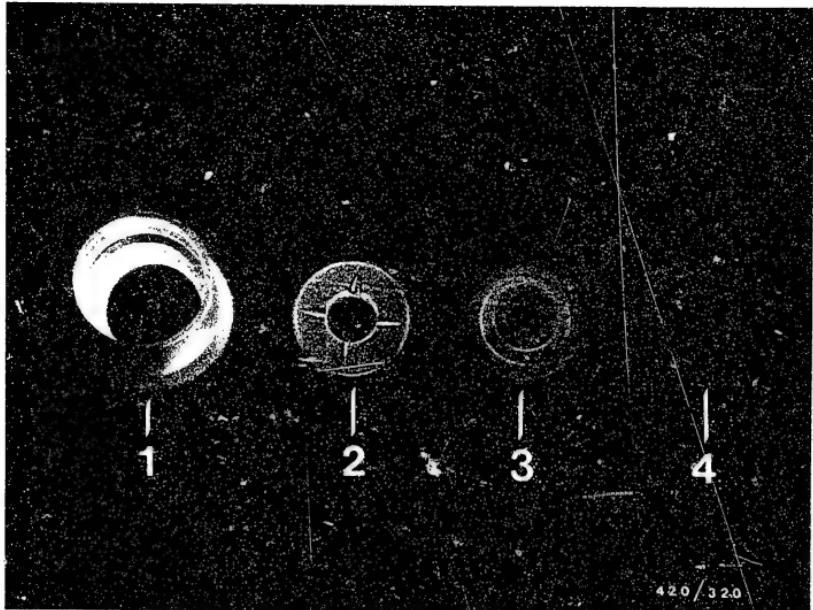




1 = Retainer  
2 = Sliding sleeve

3 = Spacer bushing  
4 = Bearing plate

Remove retainer and spacer bushing from sliding sleeve.  
Press out bearing plate.



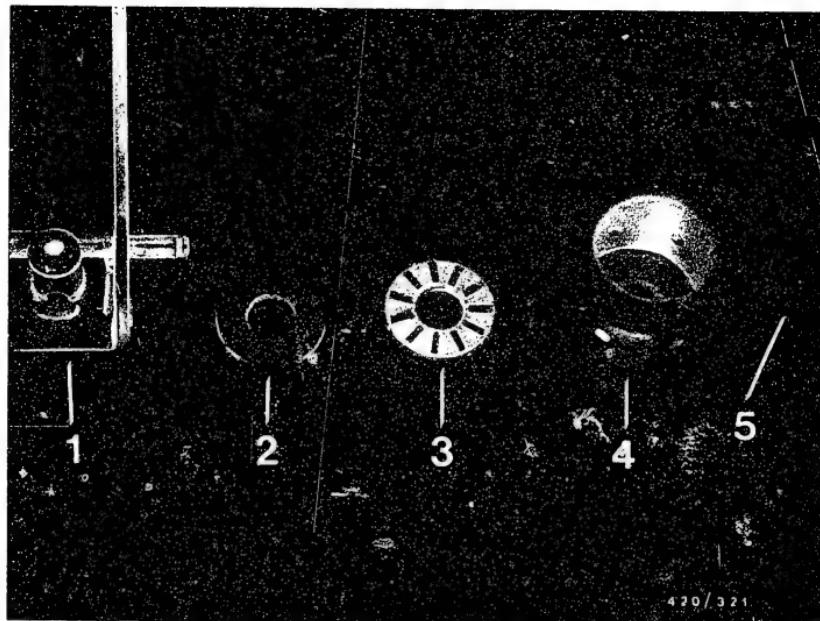
1 = Sliding sleeve  
2 = Bearing plate

3 = Spacer bushing  
4 = Retainer

Press new bearing plate into sliding sleeve. Insert spacer bushing and fix in position with retainer.

Note:

Do not press sliding sleeve onto sleeve carrier until after the gap (between sleeve and governor housing) has been checked.



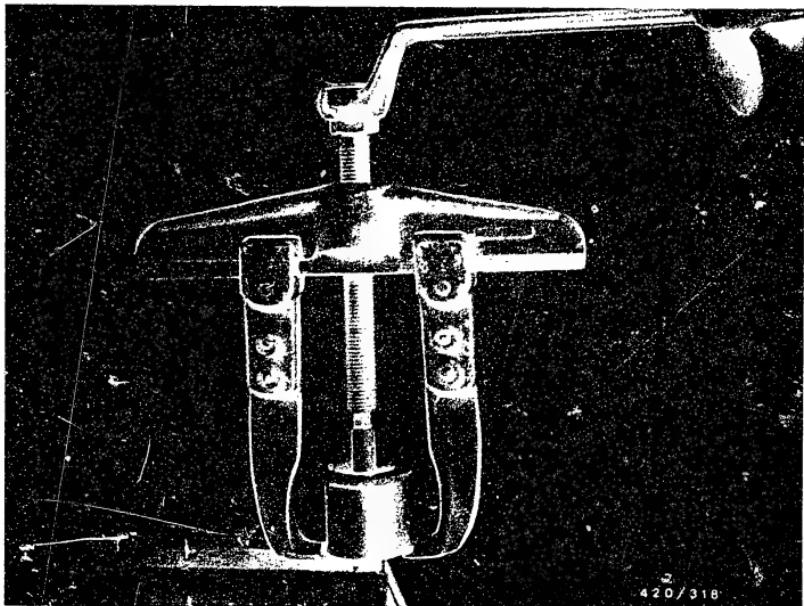
### 9.1.2 Sliding sleeve with axial needle bearing

1 = Sleeve carrier	4 = Sliding sleeve
2 = Thrust washer	5 = Retainer
3 = Axial needle bearing	

In the case of governors with externally adjustable sleeve position, it is not necessary to remove the sleeve.

After removing the retainer, remove sleeve, needle bearing and thrust washer from sleeve carrier.

Replace thrust washer and needle bearing.  
Position sliding sleeve and fix in position with new retainer.



### 9.1.3 Sliding sleeve with deep-groove ball bearing

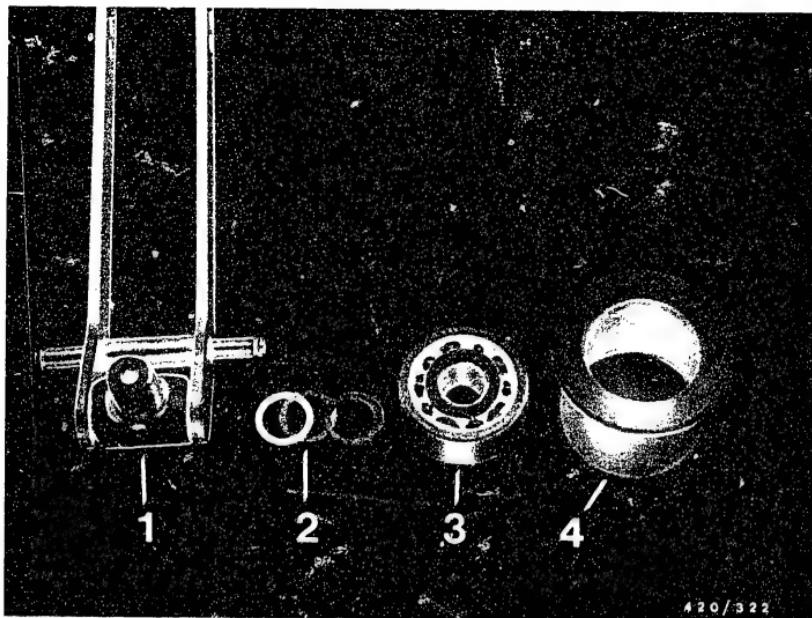
Using commercially available two-leg puller, remove sliding sleeve together with ball bearing from guide lever sleeve carrier.

Remove sleeve-position adjusting shims (if applicable) from sleeve carrier.

**D5**

Repairing the governor  
RSV/RSUV governors

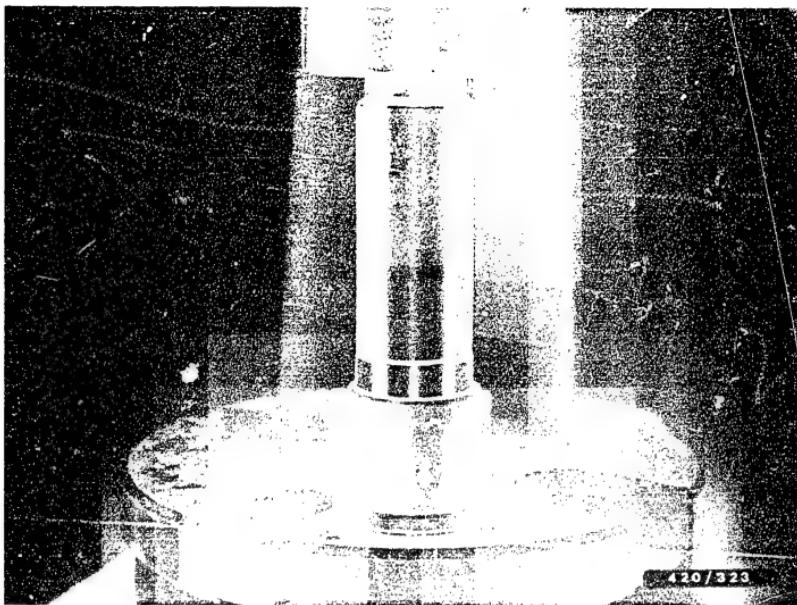




1 = Sleeve carrier  
2 = Shims

3 = Deep-groove ball bearing  
4 = Sliding sleeve

Press deep-groove ball bearing out of sliding sleeve.



Using press-on sleeve KDEP 1582, press new deep-groove ball bearing into sliding sleeve.

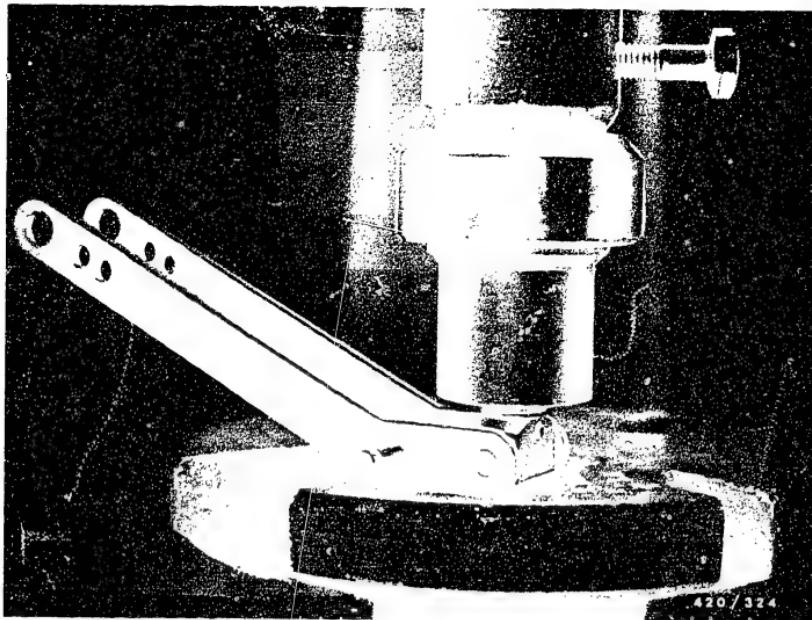
Note:

Do not press sliding sleeve onto sleeve carrier until after the gap (between sleeve and governor housing) has been checked.

**D7**

Repairing the governor  
RSV/RSUV governors



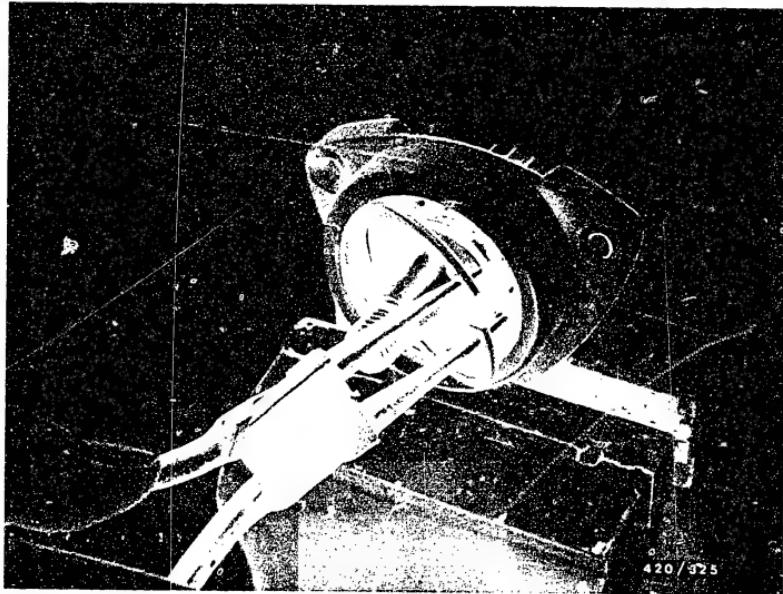


If the sliding sleeve is externally adjustable (no checking of gap), then press the sleeve onto the guide lever sleeve carrier.

**D8**

Repairing the governor  
RSV/RSUV governors





9.2 Replacing the angular-contact ball bearing and/or governor shaft (RSUV)

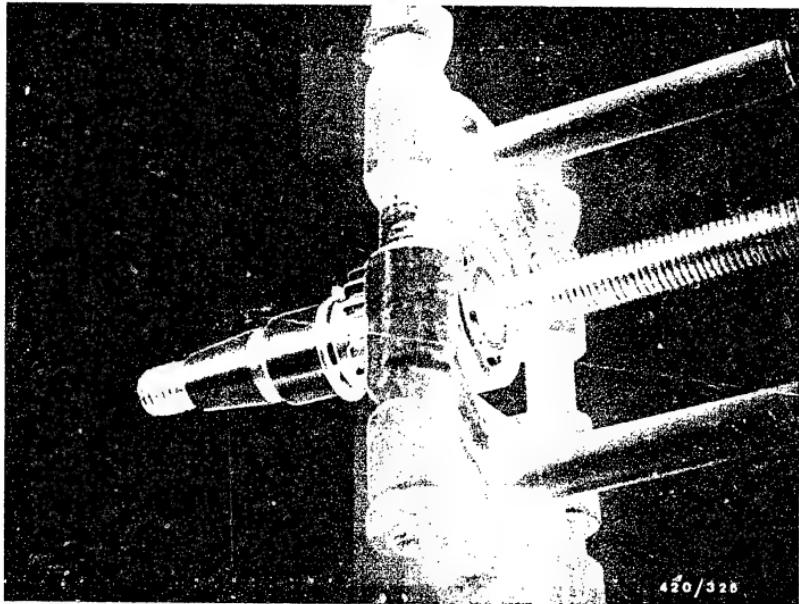
Clamp bearing end plate in vise (use protective jaws or ground vise jaws).

Remove retainer and press governor shaft out of angular-contact ball bearing.

**D9**

Repairing the governor  
RSV/RSUV governors





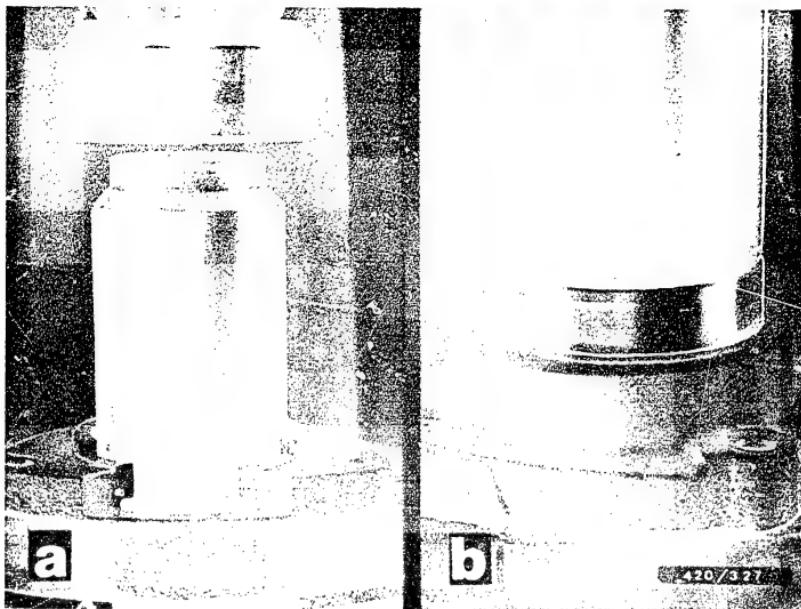
420/328

If there is damage to the governor shaft gear, the deep-groove ball bearing can, if in good condition, be used again. Pull off deep-groove ball bearing using suitable tools (see picture).

**D 10**

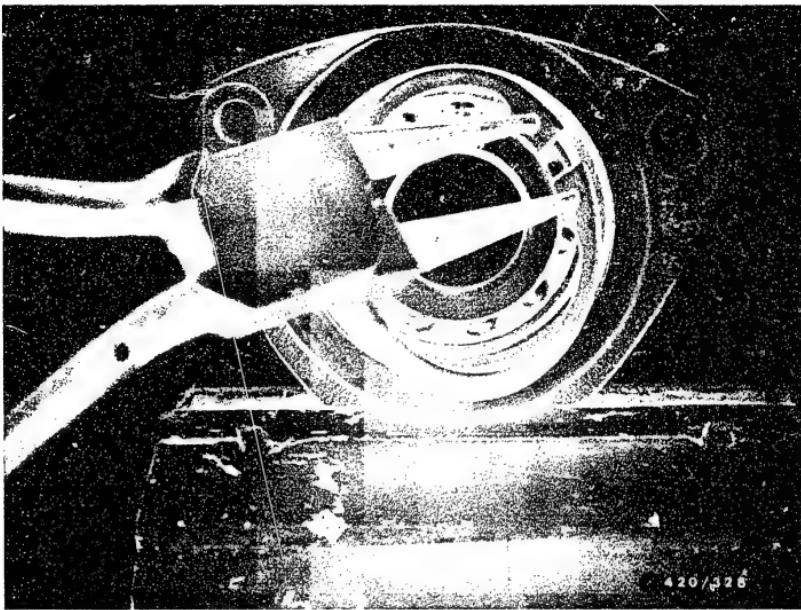
Repairing the governor  
RSV/RSUV governors





Using press-on sleeve KDEP 1583, press angular-contact ball bearing out of bearing end plate (see picture a).

Using sleeve KDEP 1559, press new bearing into bearing end plate as far as bearing seat (see picture b).

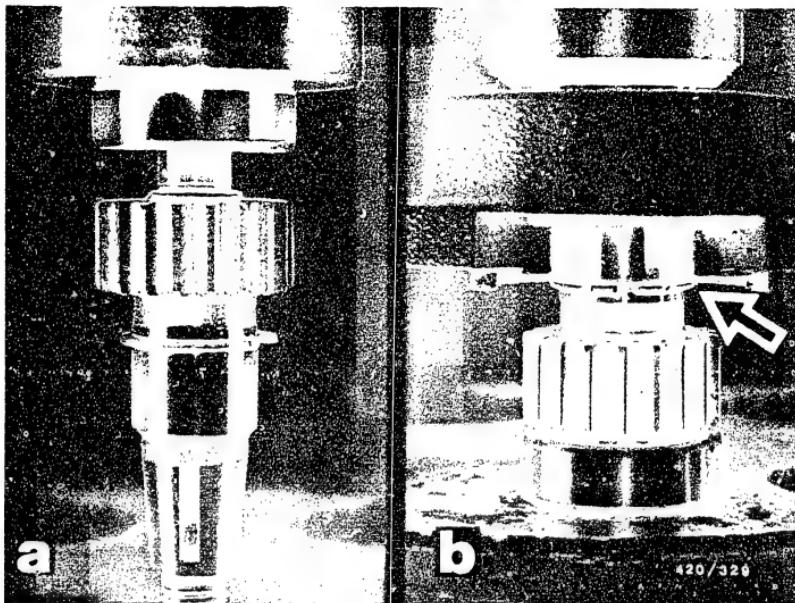


Clamp bearing end plate in vise and insert retainer.

**D12**

Repairing the governor  
RSV/RSUV governors

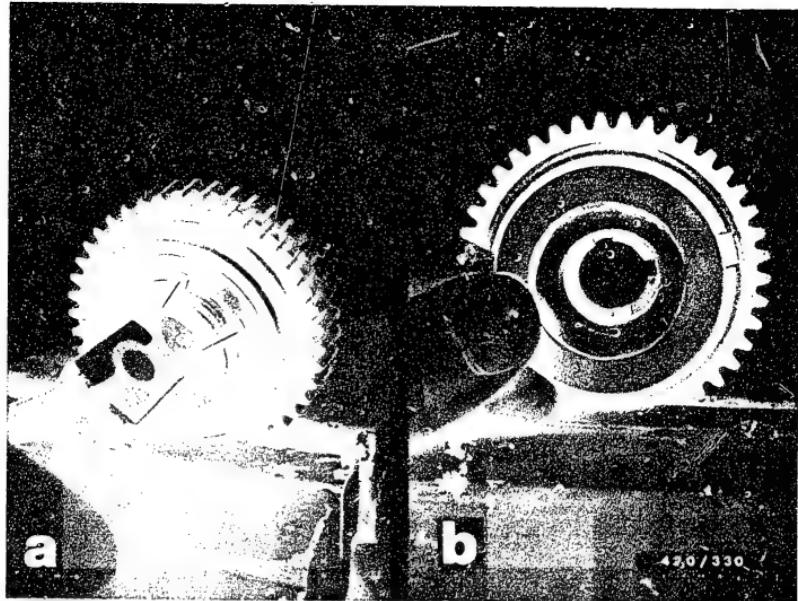




Using press-on sleeve KDEP 1583, press deep-groove ball bearing (see picture a) and bearing end plate onto governor shaft as far as retainer (see picture b, arrow).

Note:

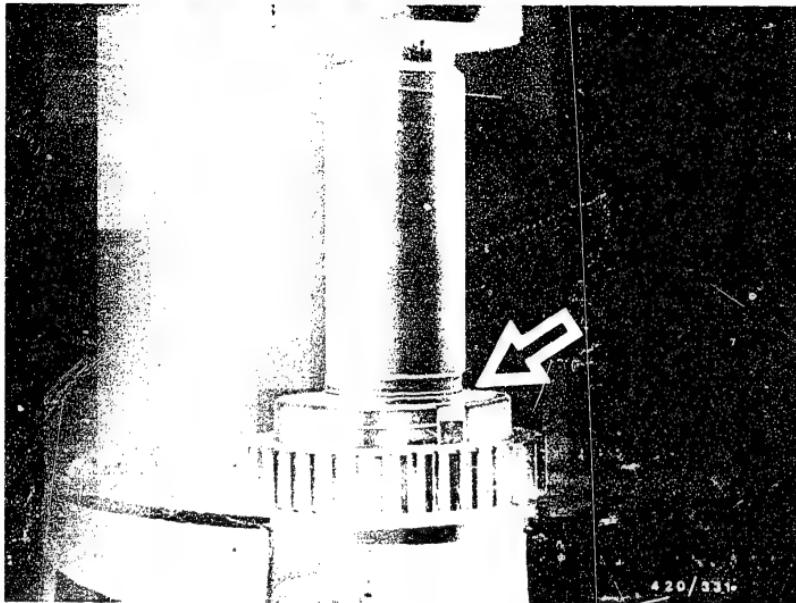
Press on inner race of angular-contact ball bearing with press-on sleeve.



9.3 Replacing the rubber buffers of the drive gear (RSUV)

Clamp drive gear in vise (use protective jaws or ground vise jaws).

Remove retainer (see picture a) and plain washer (see picture b).

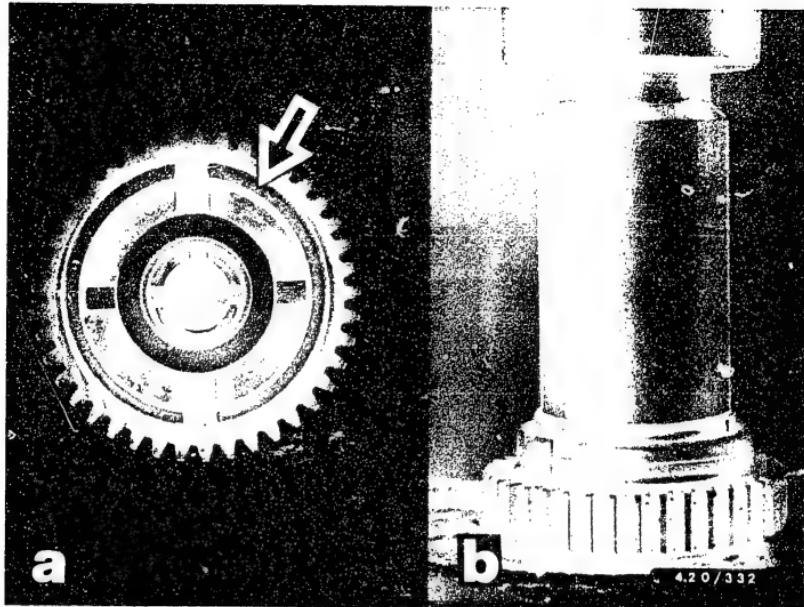


Remove rubber buffers. To do this, press driver (see picture, arrow) out of gear using press-on sleeve KDEP 1582.

**D 15**

Repairing the governor  
RSV/RSUV governors





Fit together driver and gear.

Insert new rubber buffers with grease (see picture a) and then press in with press-on sleeve KDEP 1582 (see picture b).

Again clamp drive gear in vise. Put on plain washer and mount retainer.

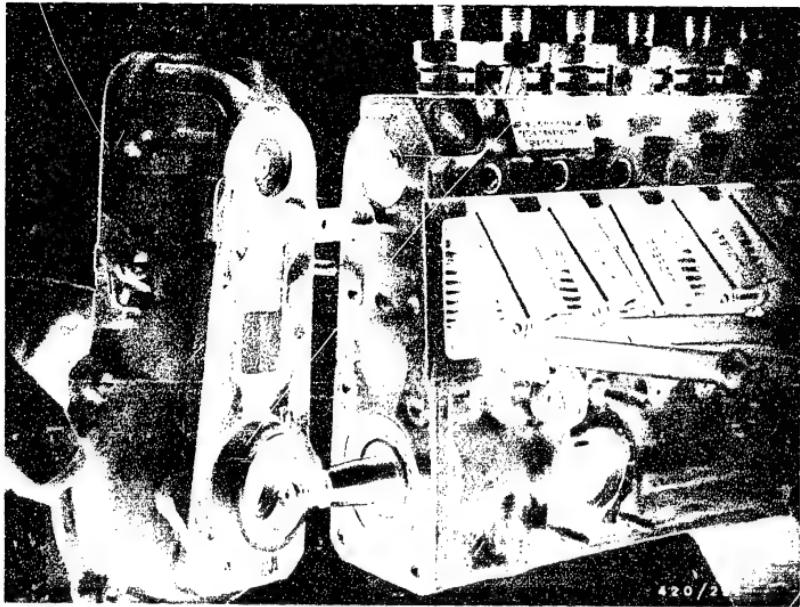
## 10. Assembling the governor

In the following operations, use only clean components which are not worn or damaged.

Always replace flat flange gaskets, radial-lip-type oil seals and O-rings.

Press governor-end camshaft bearing outer race into governor housing as far as it will go.





420/2

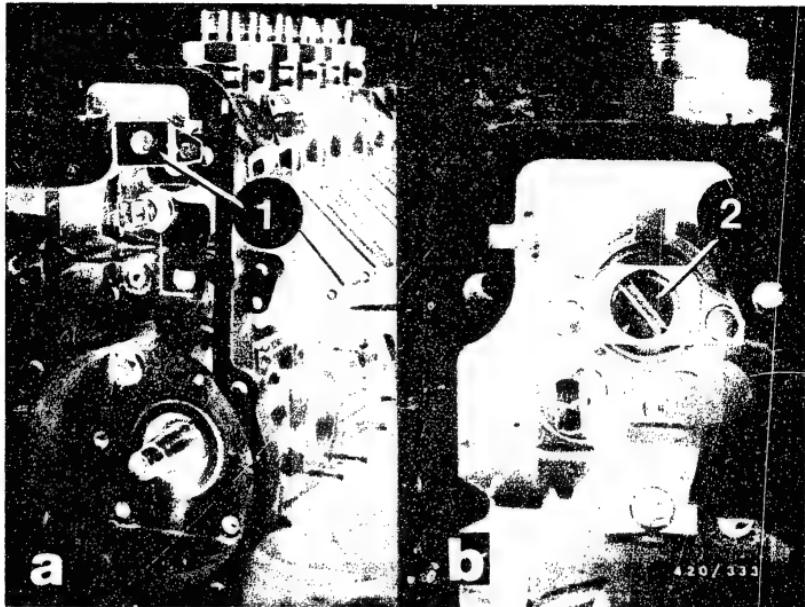
Place new gasket (between governor housing and pump housing) on governor housing. (If necessary, stick on with a little lubricating grease).

Mount governor housing on pump housing and screw down. Tightening torque: 9 ... 12 Nm.

**D18**

Assembling the governor  
RSV/RSUV governors





1 = Holding plate

2 = Fastening screw

Install holding plate and mount using the specified screw.

Tightening torque depending on screw:

Flat-head screw = 13 ... 18 Nm

Hexagon screw = 18 ... 20 Nm

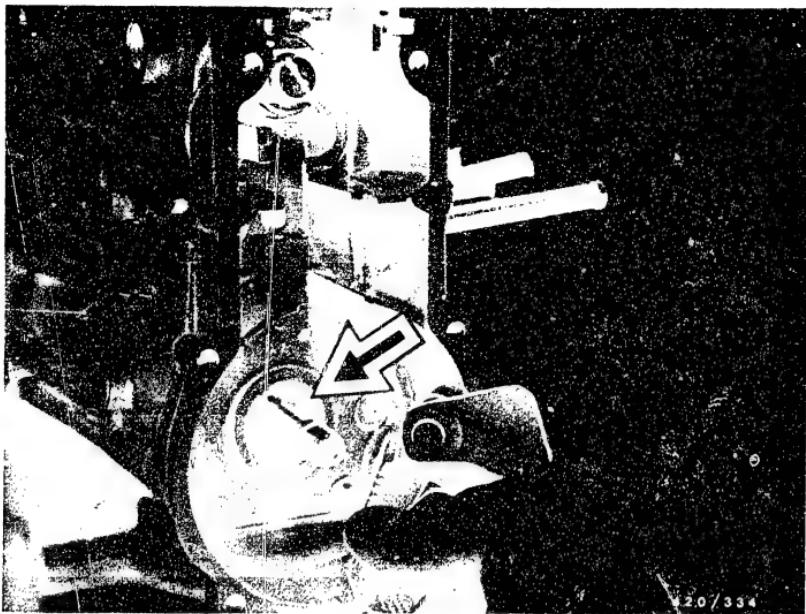
Fillister-head screw = 15 ... 18 Nm

Perform axial play of camshaft in accordance with repair instructions of the injection pump.

**D20**

Assembling the governor  
RSV/RSUV governors





### RSV governors

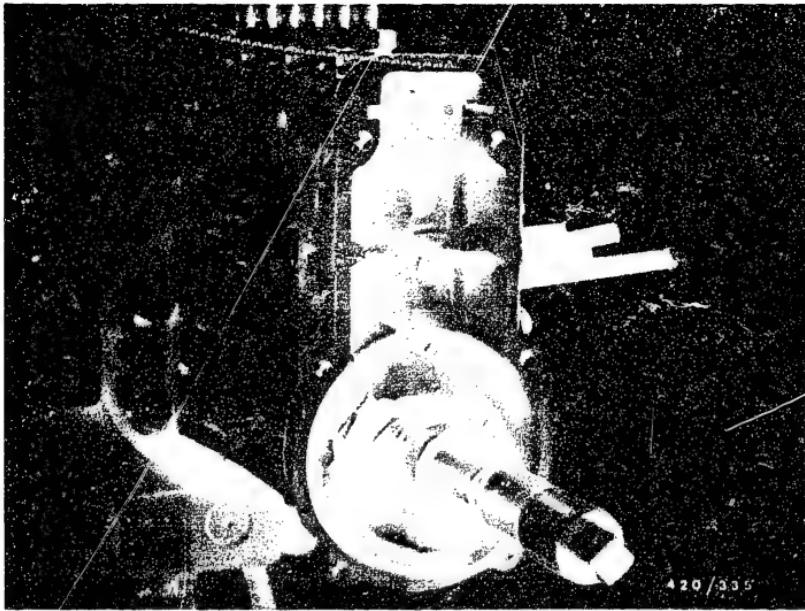
Insert Woodruff key (see picture, arrow) in groove in camshaft and mount governor assembly on cone of cam-shaft.

**D21**

Assembling the governor

RSV/RSUV governors





### RSV governors

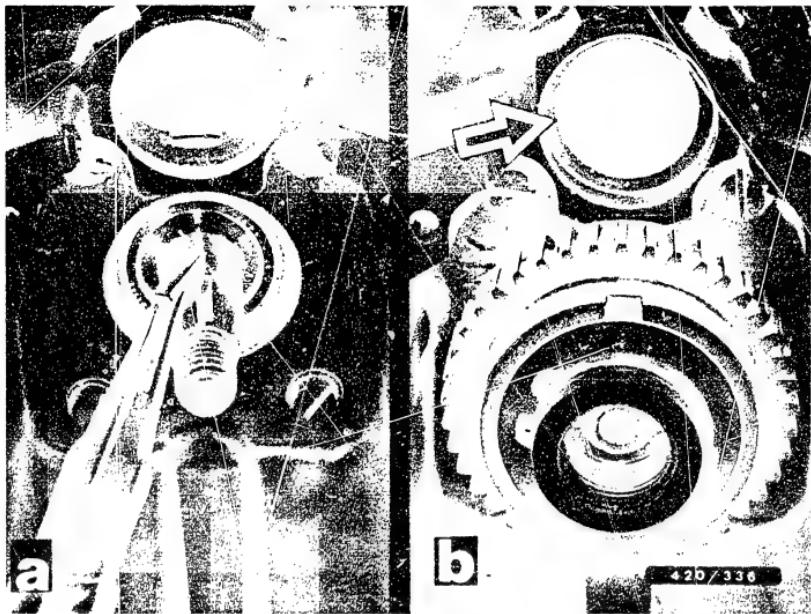
Screw round nut for mounting governor assembly onto cam-shaft and tighten to 50 ... 60 Nm using socket wrench KDEP 2998.

**D22**

Assembling the governor

RSV/RSUV governors



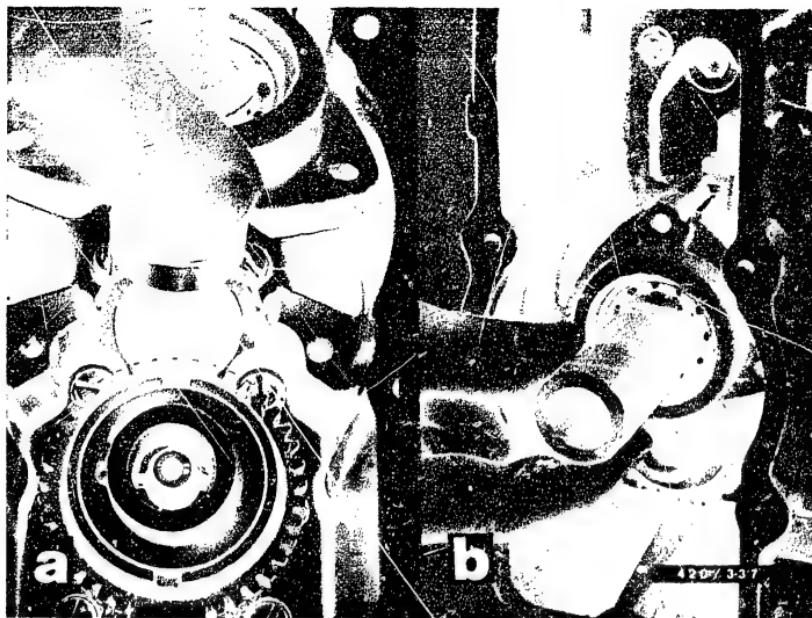


#### 10.1 RSV governors, mounting the drive

Insert Woodruff key in groove in camshaft (see picture a).

Slide drive gear onto cone of camshaft until the Woodruff key just grips (see picture b).

Insert shim into deep-groove ball bearing pilot (see picture b-arrow).

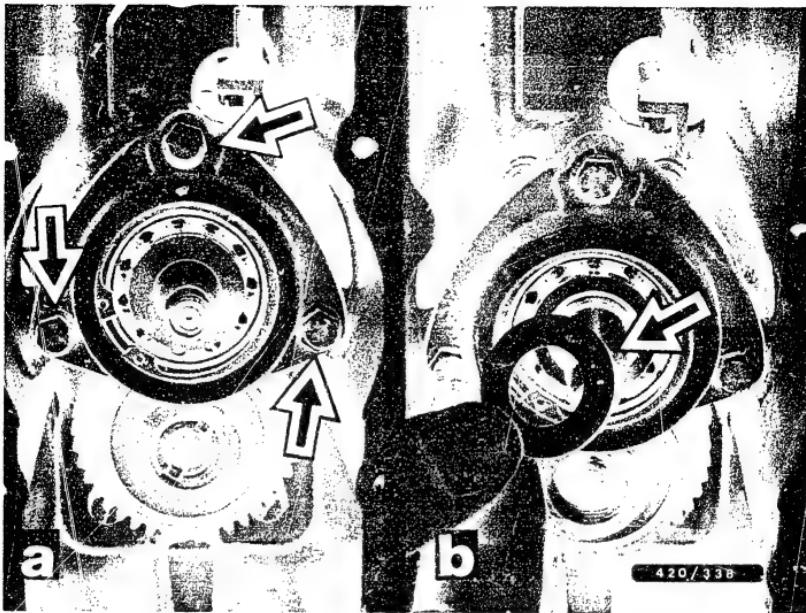


Insert governor shaft slightly obliquely from above into deep-groove ball bearing pilot. At the same time, slide the drive gear further onto the cone of the camshaft (see picture a).

Note:

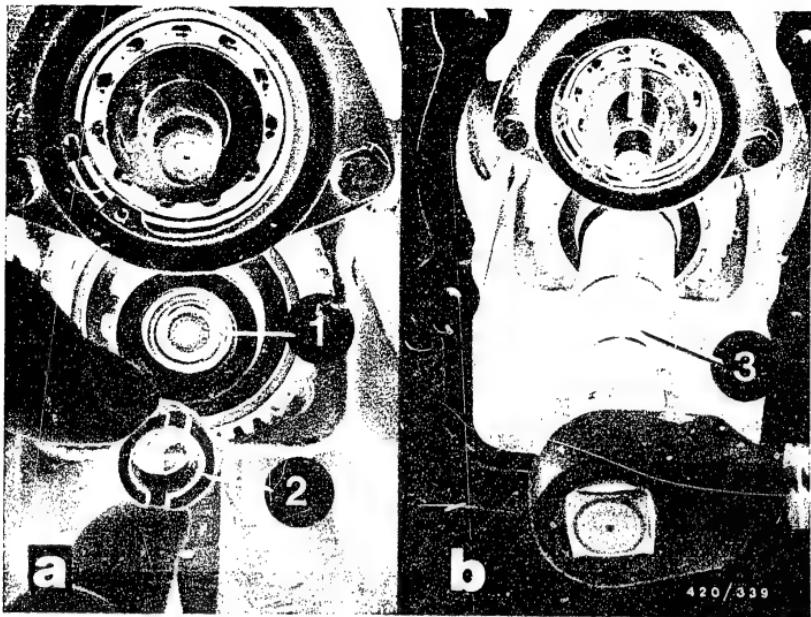
If necessary, using press-on sleeve KDEP 1532, press in governor shaft until it is fully seated in the bearing seat (see picture b).

Press on inner race of angular-contact ball bearing with press-on sleeve.



Screw in bearing end plate fastening screws (see picture a-arrows) and tighten to 5 ... 7 Nm.

Mount shim (see picture b-arrow) with chamfer toward angular-contact ball bearing.

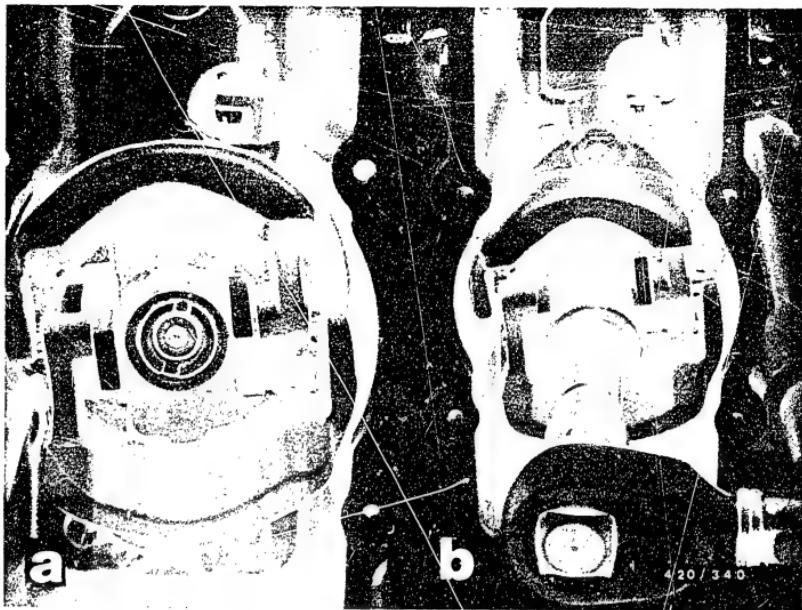


1 = Spring lock washer  
2 = Round nut

3 = Pin-type socket wrench  
KDEP 2998

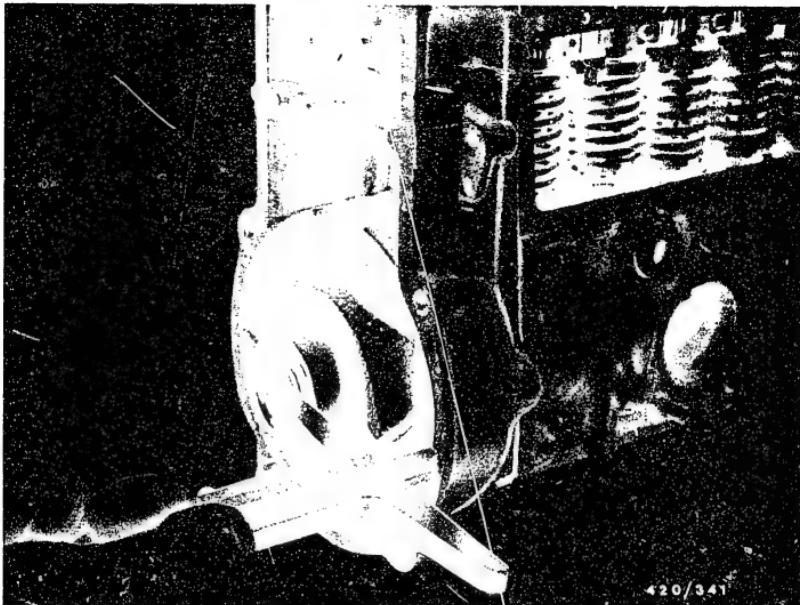
Slide spring lock washer over threaded stub of camshaft and screw on round nut (see picture a).

Tighten round nut to 50 ... 60 Nm (see picture b).



Insert Woodruff key in groove of governor shaft and mount governor assembly on cone of governor shaft. Then insert spring lock washer and screw on round nut (see picture a).

Tighten round nut to 50 ... 60 Nm using pin-type socket wrench KDEP 2998 (see picture b).



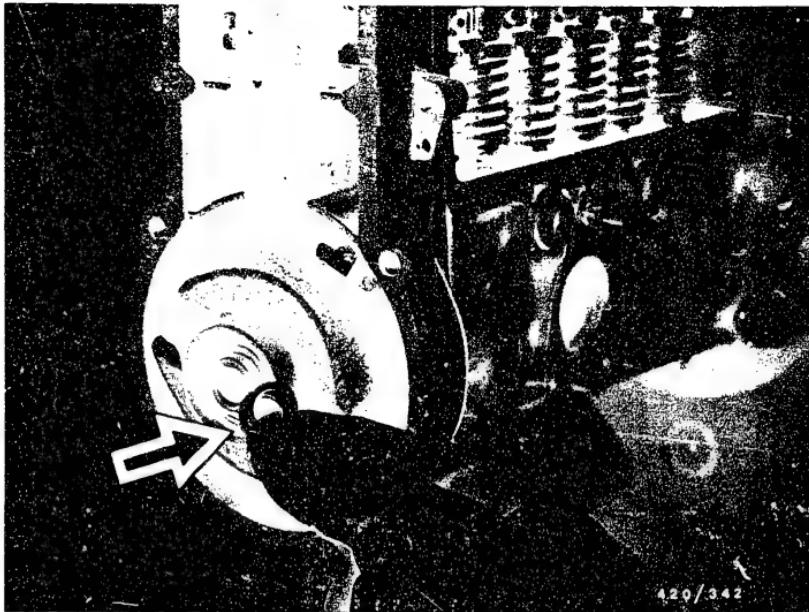
#### 10.2 Checking the gap between sliding sleeve and housing

Introduce sliding sleeve into governor assembly. Put on shims and, using a depth gauge, measure gap between shims and housing sealing surface, without gasket. Specification: RSV governors: 18.8 - 19.2 mm; RSUV governors: 18.3 - 18.7 mm

**E4**

Assembling the governor  
RSV/RSUV governors





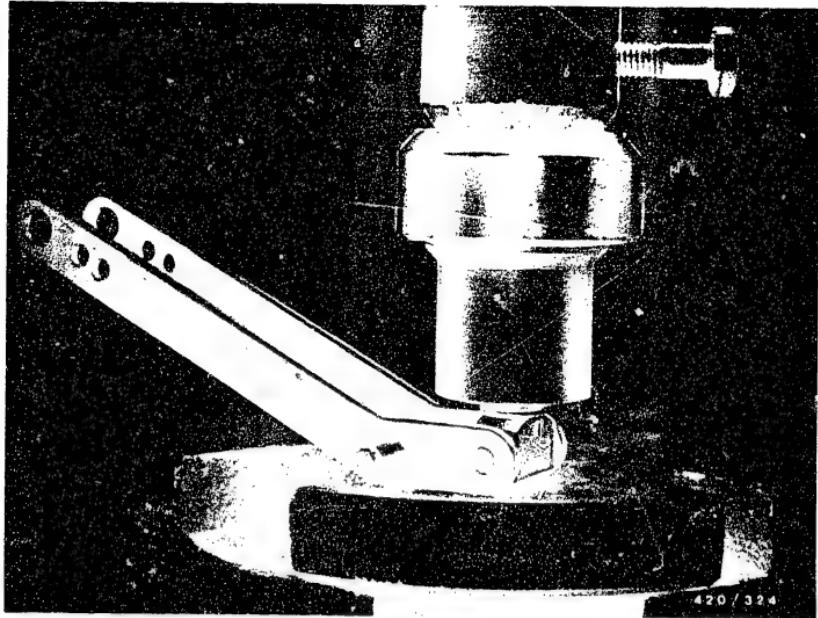
If the measured dimension differs from the specification 18.8 - 19.2 mm (RSV governors) or 18.3 - 18.7 mm (RSUV governors), make correction by selecting the necessary shims (see picture, arrow).

This operation is not applicable in the case of governors with externally adjustable sleeve position.

**E5**

Assembling the governor  
RSV/RSUV governors





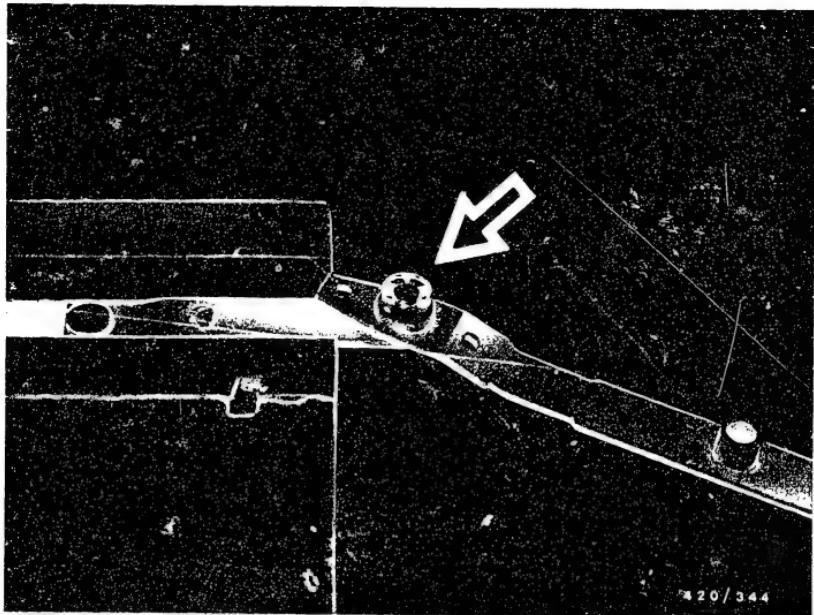
Lay the appropriate shims on the sleeve carrier.

Remove sliding sleeve from flyweight assembly and, using a hand press, press onto guide lever sleeve carrier.

**E6**

Assembling the governor  
RSV/RSUV governors





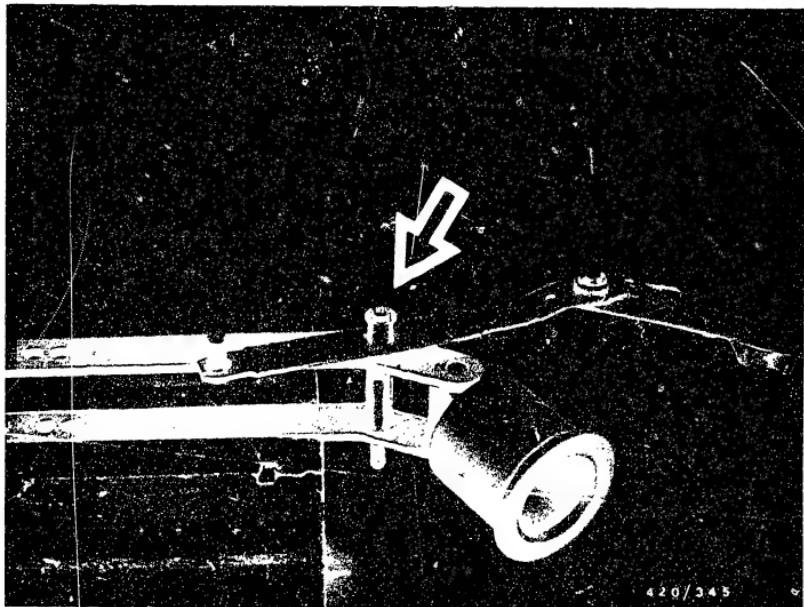
### 10.3 Assembling the governor cover

Clamp strap in vise. Put on fulcrum lever and secure with retainer (see picture, arrow).

**E7**

Assembling the governor  
RSV/RSUV governors



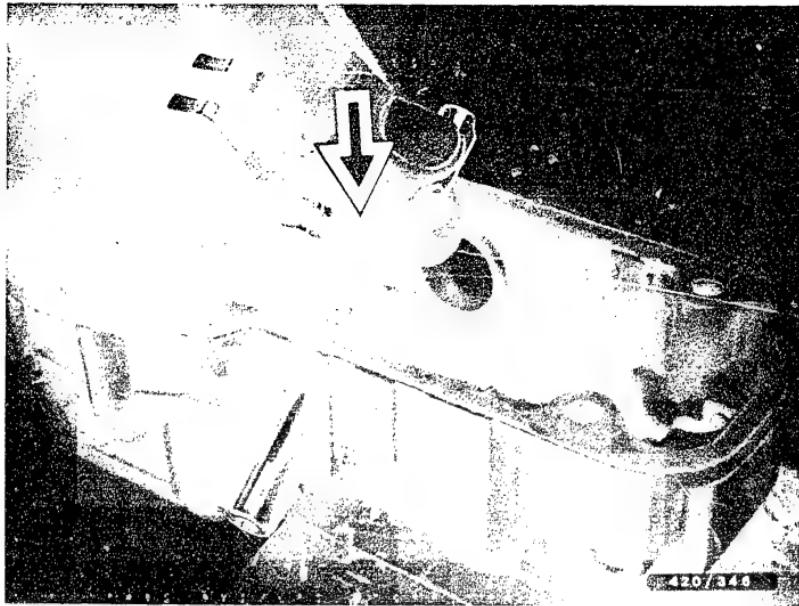


Clamp guide lever with sliding sleeve in vise. Put on fulcrum lever with strap and secure with retainer (see picture, arrow).

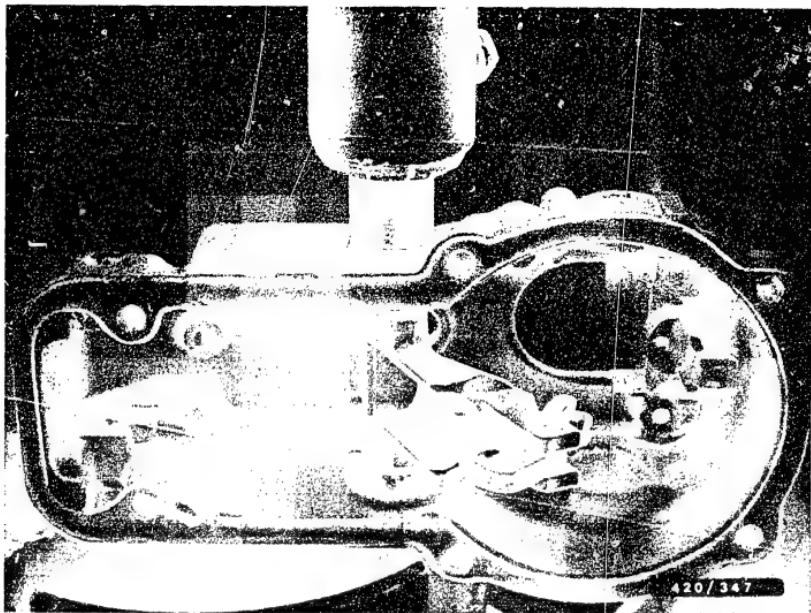
**E8**

Assembling the governor  
RSV/RSUV governors





Introduce swiveling lever assembly with rocker and adjusting screw into governor cover mounting hole with the longer shaft stub so that the recess (see picture, arrow) points to the upper side of the cover.

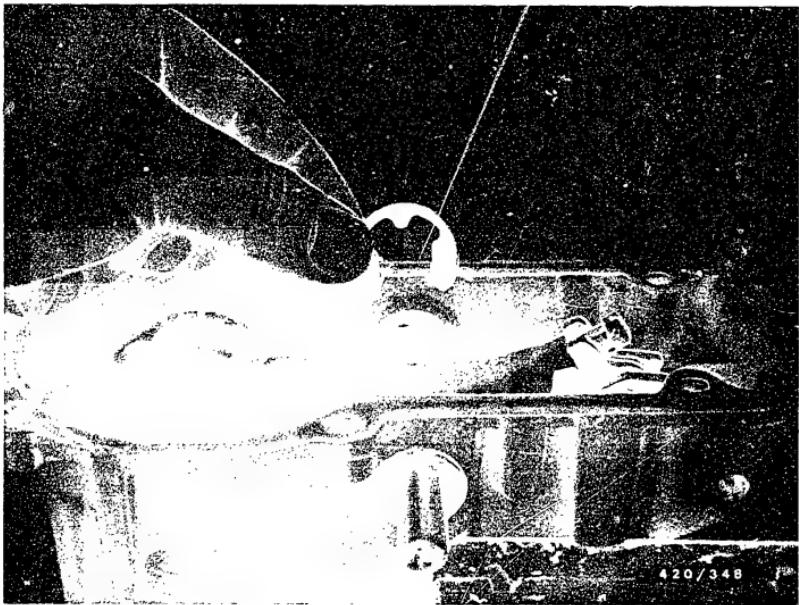


Using press-in sleeve KDLJ 6499/0/3, press swiveling lever guide bushings into governor cover as far as they will go. The O-rings for sealing the shaft stubs have not been mounted at this stage. Check swiveling lever for freedom of movement.

**E10**

Assembling the governor  
RSV/RSUV governors





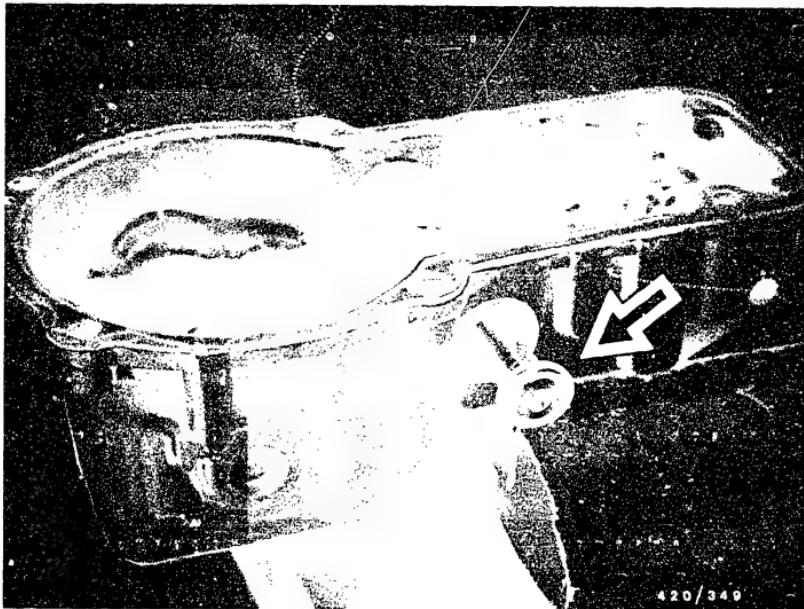
420/348

Insert retainer into annular groove provided on guide bushings.

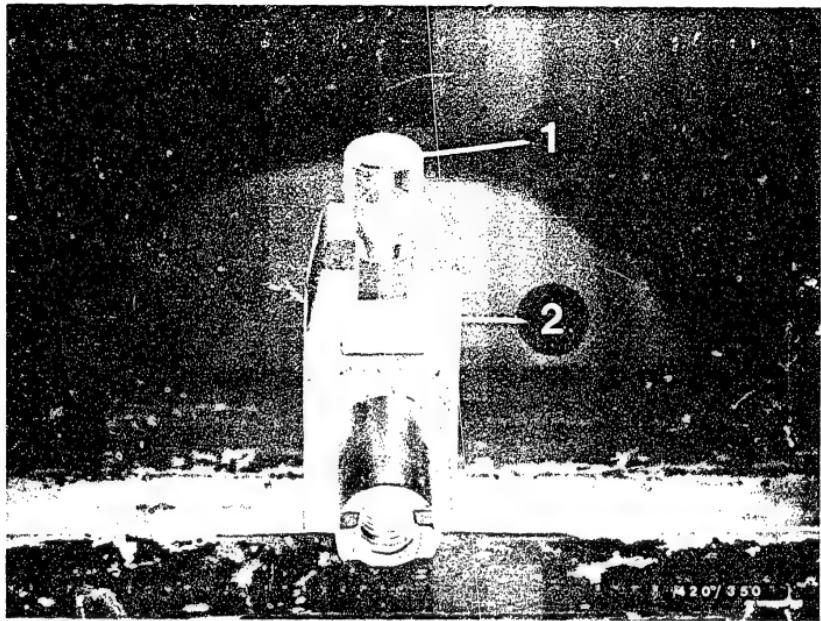
**E11**

Assembling the governor  
RSV/RSUV governors





Slide O-ring (see picture, arrow) over shaft ends and press into recess on bearing bushings.  
If specified, press closure cap into bushing of short shaft end.



1 = Slider

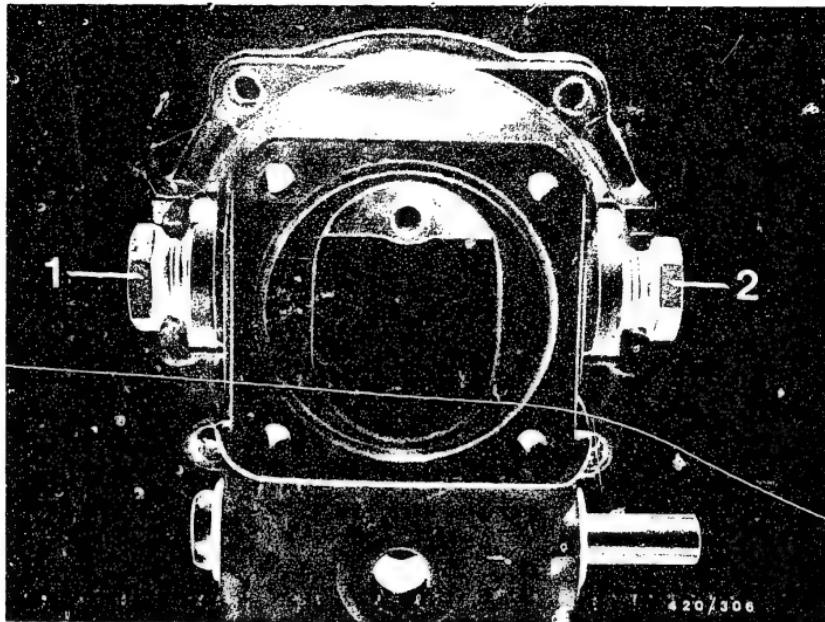
2 = Link

Introduce slider into link.

**E13**

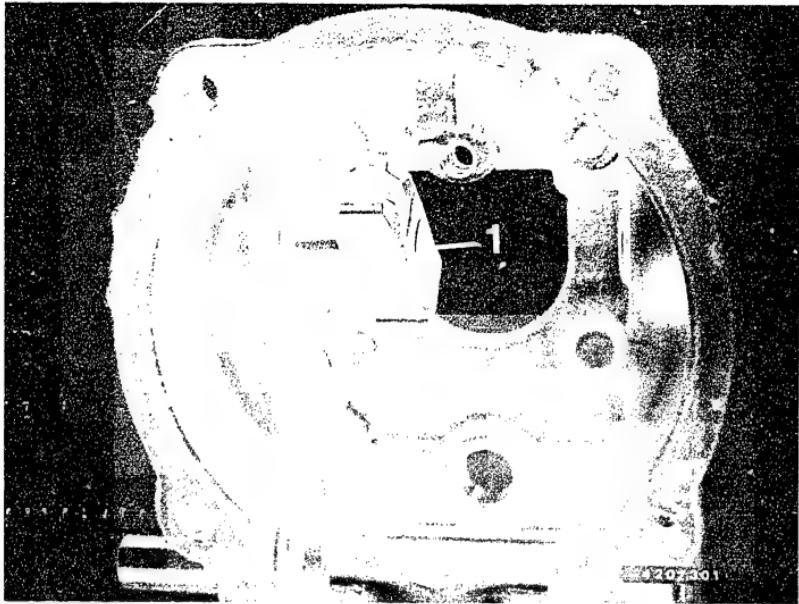
Assembling the governor  
RSV/RSUV governors





1 = Screw plug      2 = Guide bushing

In the case of governors with stop lever, screw screw plug and guide bushing into governor cover and tighten.



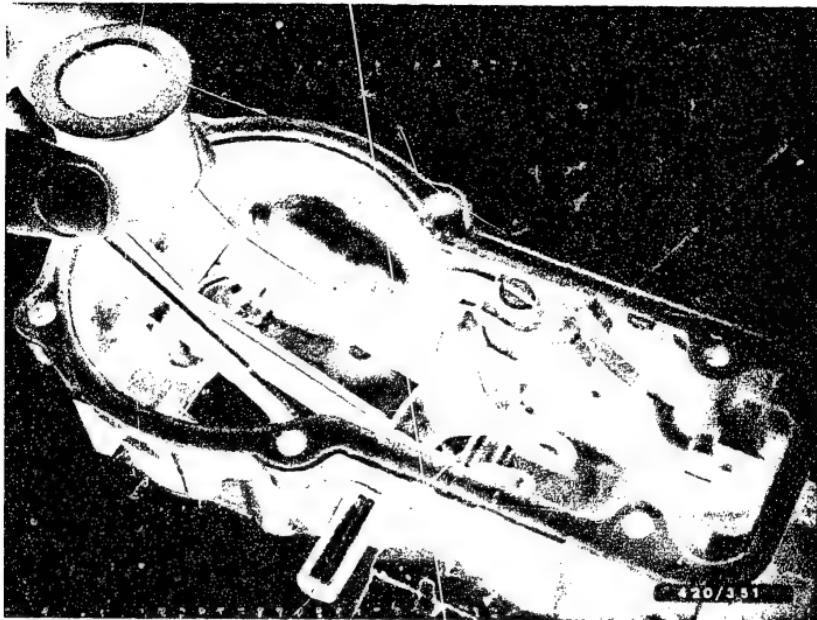
1 = Link

Introduce link from inside into governor cover guide bushing (see picture).

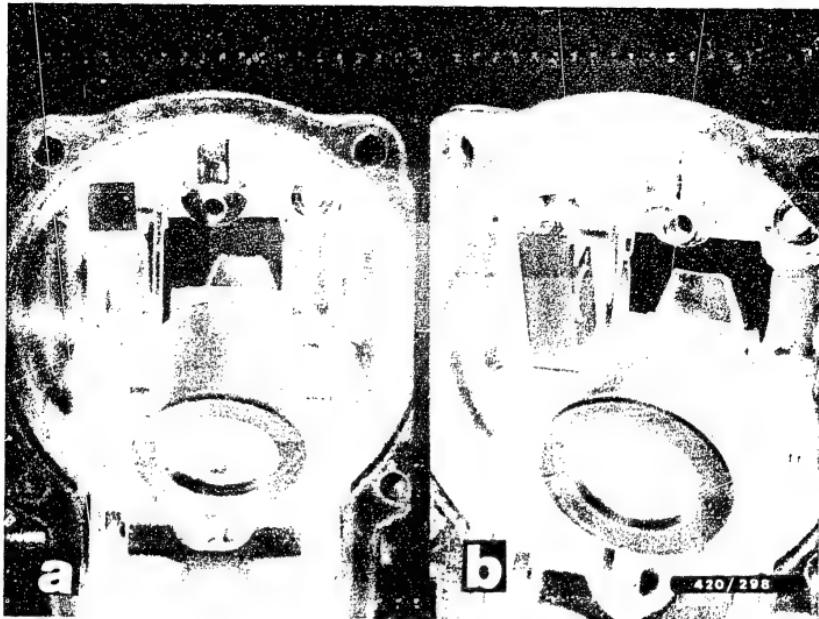
**E15**

Assembling the governor  
RSV/RSUV governors



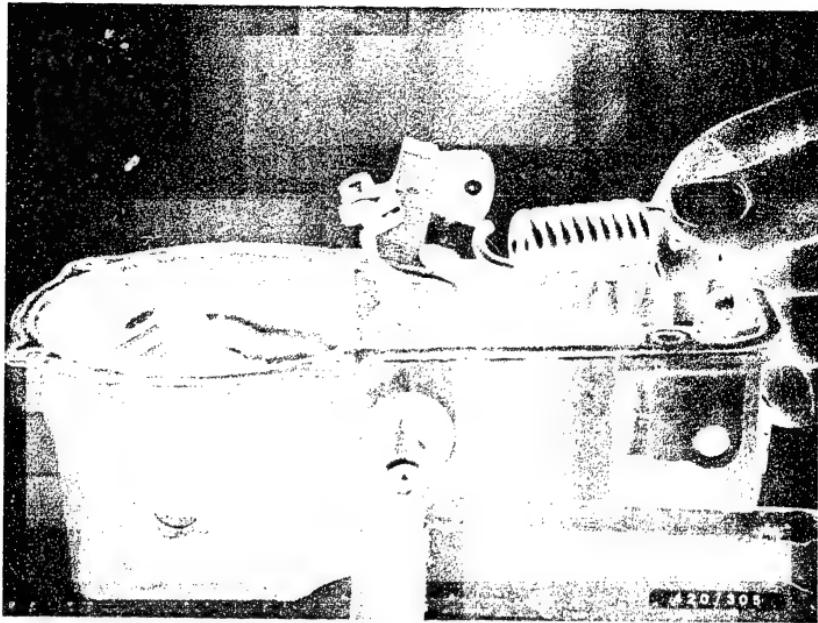


Introduce guide lever/fulcrum lever assembly under swiveling lever. This requires extreme care and attention so as to prevent damage to or bending of the levers.



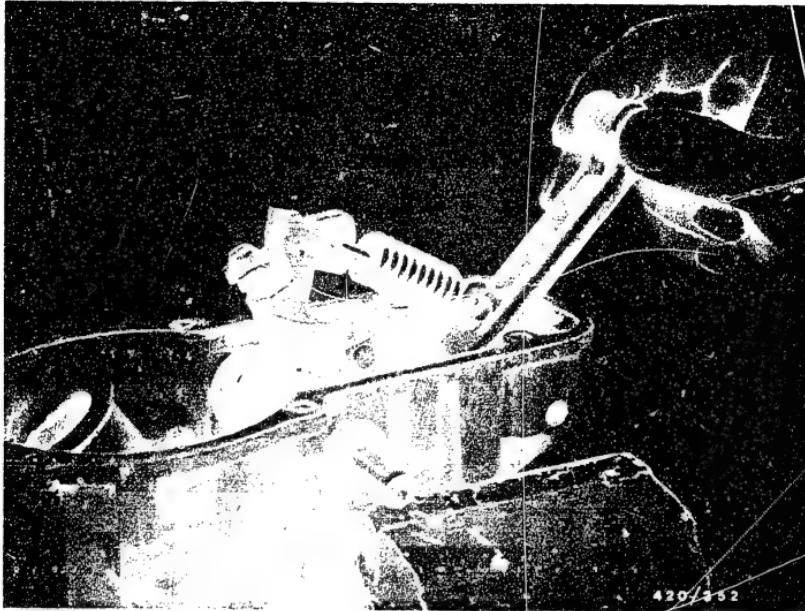
Picture a = Governor without stop lever  
Picture b = Governor with stop lever

Introduce fulcrum lever guide pin into slider mounting hole in link.



Hook governor spring into swiveling lever rocker.

So that the idle/shutoff stop screw does not scrape against the last spring turn, it is essential that the spring be hooked into the swiveling lever rocker as shown in the picture.

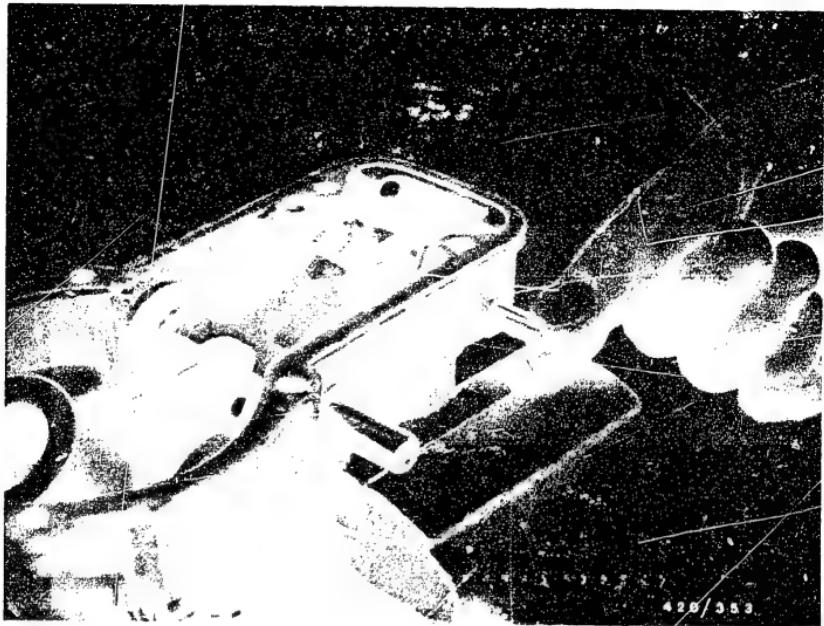


Hook free eye of governor spring into tensioning lever and introduce tensioning lever from above under swiveling lever into governor cover.

**E19**

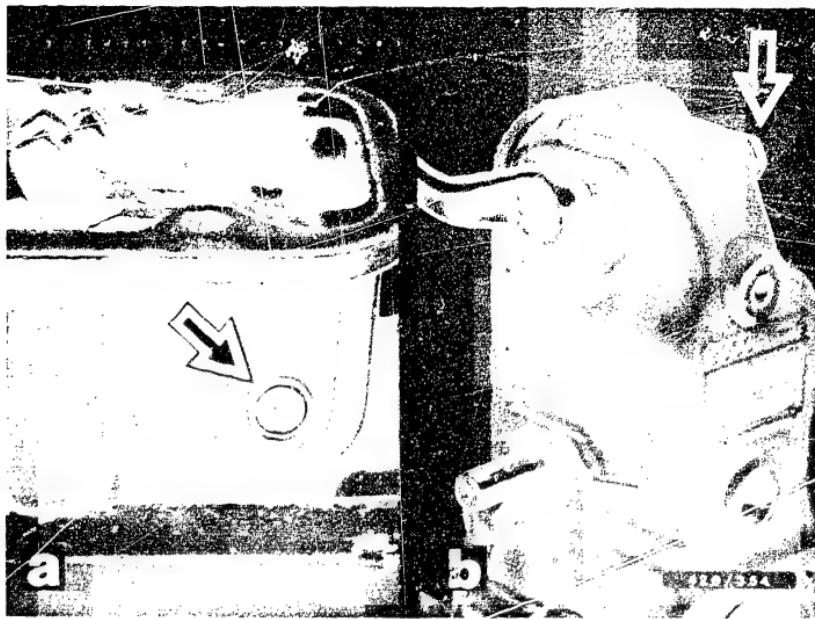
Assembling the governor  
RSV/RSUV governors



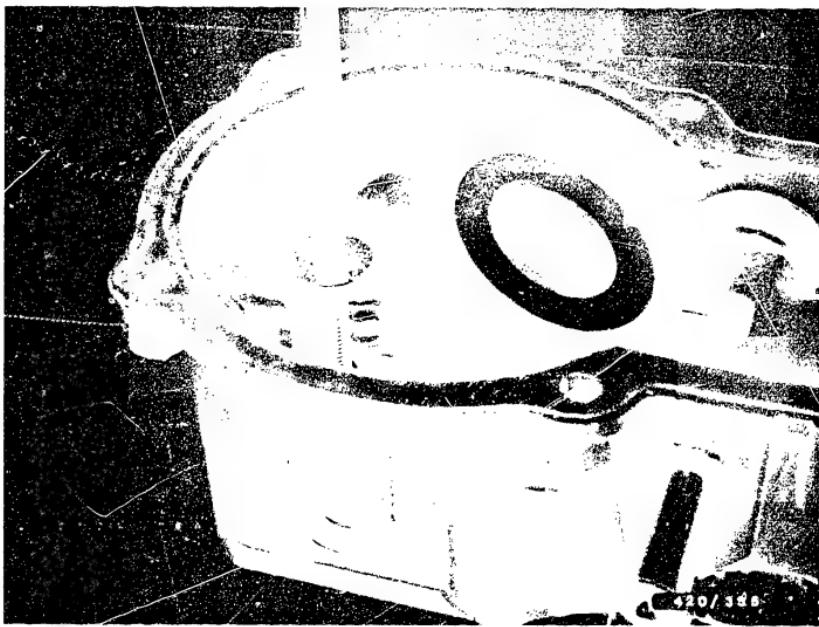


420/353

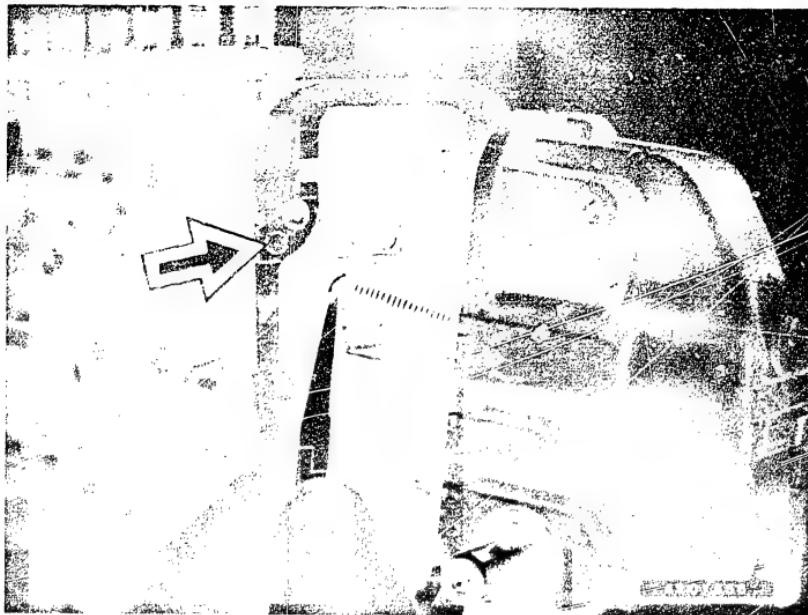
Introduce bearing pin for tensioning lever and guide lever into governor cover mounting hole. Carefully slide bearing pin through the corresponding holes in the guide lever and tensioning lever and into the opposite hole in the governor cover.



Close mounting hole with closure caps (see picture a, arrow) or screw plugs (see picture b, arrow), depending on version.



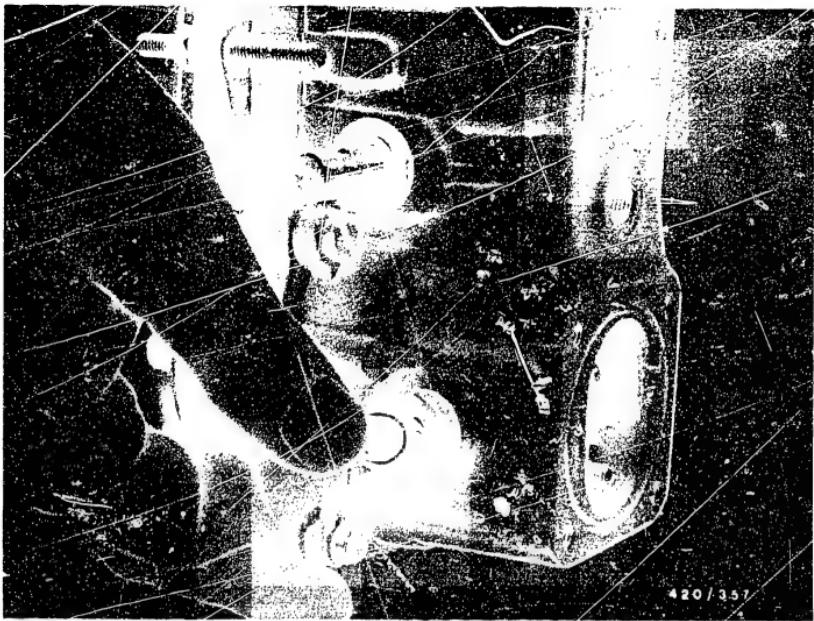
Screw full-load stop screw into governor cover (see picture).



Hook starting spring (see picture, arrow) into eye of fulcrum lever. Introduce sliding sleeve into governor assembly. Using pointed pliers, hook starting spring into eye of holding plate.

Introduce strap into control rod mounting hole and secure with leaf spring.

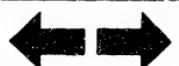
Screw governor cover assembly onto governor housing.

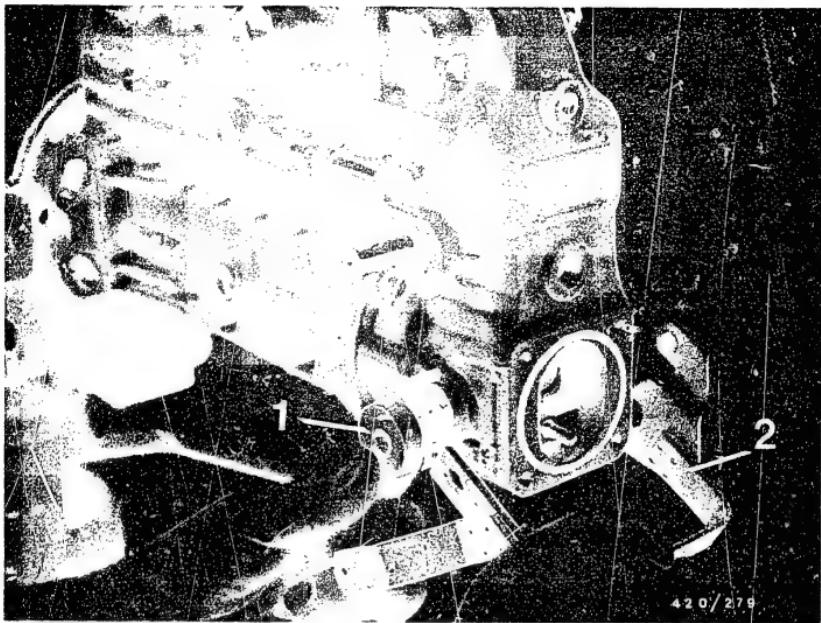


In the case of governors with stop lever, insert O-ring into link guide bushing (see picture).

**E24**

Assembling the governor  
RSV/RSUV governors





1 = Spring retainer

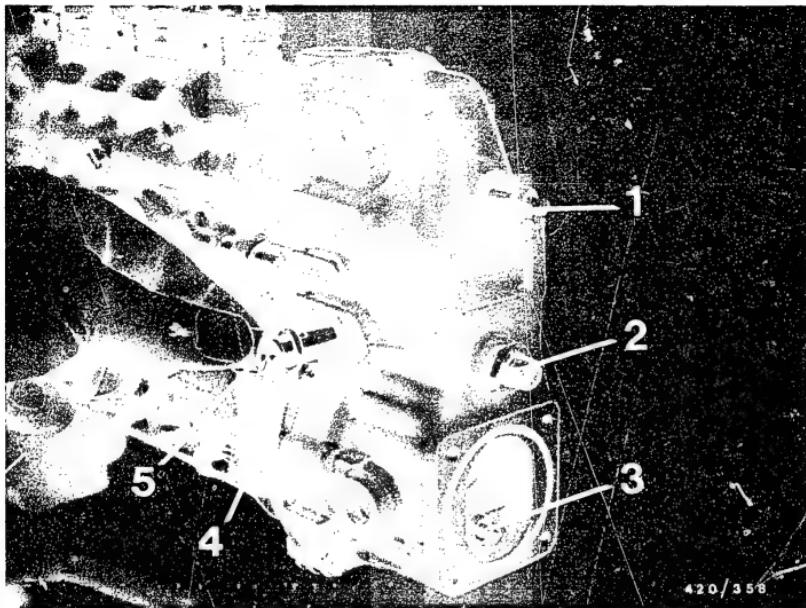
2 = Stop lever

Screw spring retainer and stop lever onto governor cover.

**F1**

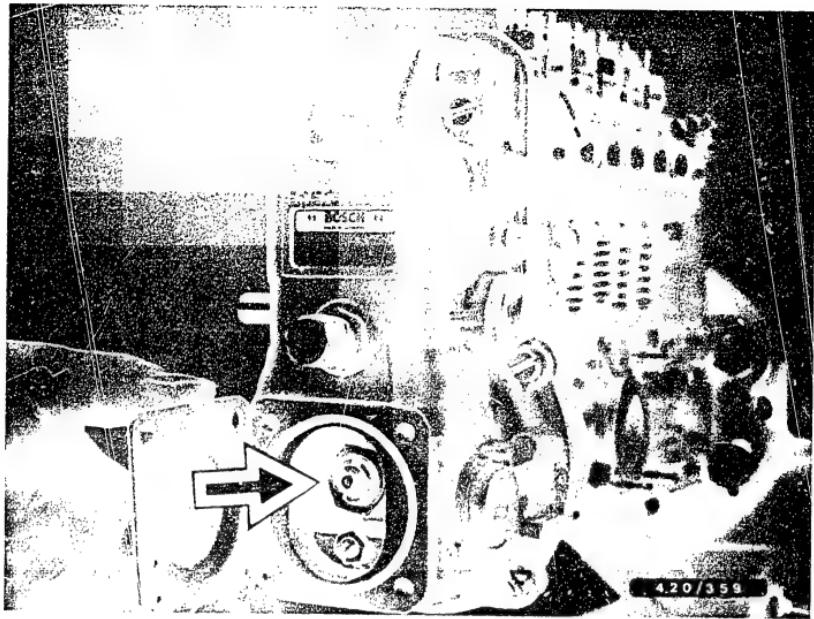
Assembling the governor  
RSV/RSUV governors





- 1 = Idle/shutoff stop screw
- 2 = Idle auxiliary spring
- 3 = Full-load stop screw
- 4 = Shims
- 5 = Spacer bushing

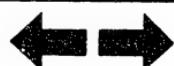
Screw idle/shutoff stop screw, idle auxiliary spring and full-load stop screw lock nut into governor cover. Slide shims and spacer bushing onto control-lever shaft.

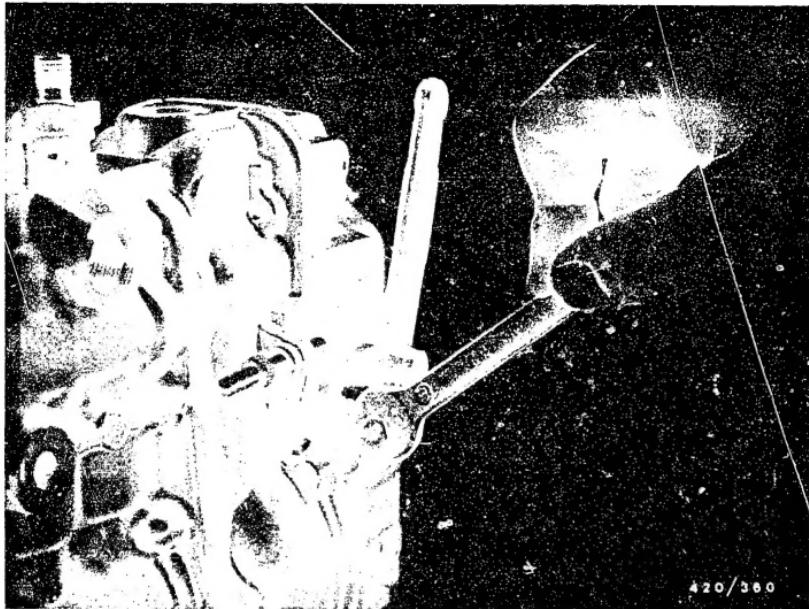


Screw spring retainer (see picture, arrow) into tensioning lever. Mount closing cover.

**F3**

Assembling the governor  
RSV/RSUV governors





Mount Woodruff key in recess in control-lever shaft.

Slide control lever onto control-lever shaft and tighten with clamping screw.

**F4**

Assembling the governor

RSV/RSUV governors



#### 10.4 Leak test on camshaft chamber, spring chamber and governor chamber

Finish off assembly of injection pump.

Compressed air is required for the leak test. Introduce compressed air into pump camshaft chamber at a suitable point (e.g. oil inspection bore).

Immerse injection pump vertically in oil bath.

Test duration and test pressure:

A,M and MW pumps - 3 minutes at 1.5 bar, then

1 minute at 0.5 bar

P pumps - 7 minutes at 1.5 bar, then

1 minute at 0.5 bar

Visually examine whether there are any leaks at sealing surfaces, screw connections, seal rings and end covers on housing and cover.

To prevent possible skin rashes, grease hands beforehand with protective skin cream and wash with soap and water after testing is completed.



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